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#### 9. INTAKE OF FRUITS AND VEGETABLES 9.1. BACKGROUND

Ingestion of contaminated fruits and vegetables is a potential pathway of human exposure to toxic chemicals. Fruits and vegetables may become contaminated with toxic chemicals by several different pathways. Ambient pollutants from the air may be deposited on or absorbed by the plants, or dissolved in rainfall or irrigation waters that contact the plants. Pollutants may also be absorbed through plant roots from contaminated soil and ground water. The addition of pesticides, soil additives, and fertilizers may also result in food contamination.

The primary source of information on consumption rates of fruits and vegetables among the United States population is the U.S. Department of Agriculture's (USDA) Nationwide Food Consumption Survey (NFCS) and the USDA Continuing Survey of Food Intakes by Individuals (CSFII). Data from the NFCS have been used in various studies to generate consumer-only and per capita intake rates for both individual fruits and vegetables and total fruits and total vegetables. CSFII data from the 1989-1991 survey have been analyzed by EPA to generate per capita intake rates for various food items and food groups.

Consumer-only intake is defined as the quantity of fruits and vegetables consumed by individuals who ate these food items during the survey period. Per capita intake rates are generated by averaging consumer-only intakes over the entire population of users and non-users. In general, per capita intake rates are appropriate for use in exposure assessment for which average dose estimates for the general population are of interest because they represent both individuals who ate the foods during the survey period and individuals who may eat the food items at some time, but did not consume them during the survey period. Total fruit intake refers to the sum of all fruits consumed in a day including canned, dried, frozen, and fresh fruits. Likewise, total vegetable intake refers to the sum of all vegetables consumed in a day including canned, dried, frozen, and fresh vegetables. For the purposes of this Handbook, the distinctions between fruits and vegetables are those commonly used, not the botanical definitions. For example, in this report, tomatoes are considered vegetables, although technically they are fruits.

Intake rates may be presented on either an as consumed or dry weight basis. As consumed intake rates (g/day) are based on the weight of the food in the form that it is consumed. In contrast, dry weight intake rates are based on the weight of the food consumed after the moisture content has been removed. In calculating exposures based

on ingestion, the unit of weight used to measure intake should be consistent with those used in measuring the contaminant concentration in the produce. Intake data from the individual component of the NFCS and CSFII are based on "as eaten" (i.e., cooked or prepared) forms of the food items/groups. Thus, corrections to account for changes in portion sizes from cooking losses are not required.

Estimating source-specific exposures to toxic chemicals in fruits and vegetables may also require information on the amount of fruits and vegetables that are exposed to or protected from contamination as a result of cultivation practices or the physical nature of the food product itself (i.e., those having protective coverings that are removed before eating would be considered protected), or the amount grown beneath the soil (i.e., most root crops such as potatoes). The percentages of foods grown above and below ground will be useful when the concentrations of contaminants in foods are estimated from concentrations in soil, water, and air. For example, vegetables grown below ground may be more likely to be contaminated by soil pollutants, but leafy above ground vegetables may be more likely to be contaminated by deposition of air pollutants on plant surfaces.

The purpose of this section is to provide: (1) intake data for individual fruits and vegetables, and total fruits and total vegetables; (2) guidance for converting between as consumed and dry weight intake rates; and (3) intake data for exposed and protected fruits and vegetables and those grown below ground. Recommendations are based on average and upper-percentile intake among the general population of the U.S. Available data have been classified as being either a key or a relevant study based on the considerations discussed in Volume I, Section 1.3.1 of the Introduction. Recommendations are based on data from the CSFII 1989-1991 survey, which was considered the only key intake study for fruits and vegetables. Although Pao et al. (1982) was not considered a key study for intake of fruits and vegetables because it is based on data from NFCS 1977-1978, it was included as a key study for serving size. Other relevant studies are also presented to provide the reader with added perspective on this topic. It should be noted that many of the relevant studies are based on data from USDA's NFCS and CSFII. The USDA NFCS and CSFII are described below.

#### 9.2. INTAKE STUDIES

#### 9.2.1. U.S. Department of Agriculture Nationwide Food Consumption Survey and Continuing Survey of Food Intake by Individuals

USDA conducts the NFCS approximately every 10 years. The three most recent NFCSs were conducted in 1965-66, 1977-78, and 1987-88. The purpose of these surveys was to "analyze the food consumption behavior and dietary status of Americans" (USDA, 1992a). The survey uses a statistical sampling technique designed to ensure that all seasons, geographic regions of the U.S., and demographic and socioeconomic groups are represented. There are two components of the NFCS. The household component collects information on the socioeconomic and demographic characteristics of households, and the types, value, and sources of foods consumed over a 7-day period. The individual component collects information on food intakes of individuals within each household over a 3-day period (USDA, 1992b).

The same basic survey design was used for the three most recent NFCSs, but the sample sizes and statistical classifications used were somewhat different (USDA, 1992a). In 1965-66, 10,000 households were surveyed (USDA, 1972). The sample size increased to 15,000 households (over 36,000 individuals) in 1977-78, but decreased to 4,500 households in 1987-88 because of budgetary constraints and a low response rate (37 percent). Data from the 1977-78 NFCS are presented in this Handbook because the data have been published by USDA in various publications and reanalyzed by various EPA offices according to the food items/groups commonly used to assess exposure. Published one-day data from the 1987-88 NFCS data are also presented.

USDA also conducted the Continuing Survey of Food Intake by Individuals during 1989 through 1991 (USDA, 1993a). The purpose of the survey was to "assess food consumption behavior and nutritional content of diets for policy implications relating to food production and marketing, food safety, food assistance, and nutrition education" (USDA, 1993a). Using a stratified sampling technique, individuals of all ages living in selected households in the 48 conterminous states and Washington, D.C. were surveyed. Individuals provided 3 consecutive days of data, including a personal interview on the first day followed by 2-day dietary records. Over 15,000 individuals participated in the 1989-91 CSFII. The three-day response rate for the 1989/91 CSFII was approximately 45 percent.

Individual average daily intake rates calculated from NFCS data are based on averages of reported individual

intakes over one day or three consecutive days. Such short term data are suitable for estimating mean average daily intake rates representative of both short-term and long-term consumption. However, the *distribution* of average daily intake rates generated using short term data (e.g., 3 day) do not necessarily reflect the long-term *distribution* of average daily intake rates. The distributions generated from short term and long term data will differ to the extent that each individual's intake varies from day to day; the distributions will be similar to the extent that individuals' intakes are constant from day to day.

Day to day variation in intake among individuals will be great for food item/groups that are highly seasonal and for items/groups that are eaten year around but that are not typically eaten every day. For these foods, the intake distribution generated from short term data will not be a good reflection of the long term distribution. On the other hand, for broad categories of foods (e.g., vegetables) which are eaten on a daily basis throughout the year with minimal seasonality, the short term distribution may be a reasonable approximation of the true long term distribution, although it will show somewhat more variability. In this and the following section, distributions are shown only for the following broad categories of foods: fruits, vegetables, meats and dairy. Because of the increased variability of the short-term distribution, the short-term upper percentiles shown here will overestimate somewhat the corresponding percentiles of the long-term distribution.

# 9.2.2. Key Fruits and Vegetables Intake Study Based on the USDA CSFII

U.S. EPA Analysis of USDA 1989-1991 CSFII Data - EPA analyzed three years of data from USDA's CSFII to generate distributions of intake rates for various fruit and vegetable items/groups. Data from the 1989, 1990, and 1991 CFSII were combined into a single data set to increase the number of observations available for analysis. Approximately 15,000 individuals provided intake data over the three survey years. The fruit and vegetable items/groups selected for this analysis included total fruits and total vegetables; individual fruits such as: apples, peaches, pears, strawberries, and other berries; individual vegetables such as: asparagus, beets, broccoli, cabbage, carrots, corn, cucumbers, lettuce, lima beans, okra, onions, peas, peppers, pumpkin, snap beans, tomatoes, and white potatoes; fruits and vegetables categorized as exposed, protected and roots; and various USDA categories (i.e., citrus and other fruits, and dark green, deep yellow, and other vegetables). These fruit and vegetable categories



were selected to be consistent with those evaluated in the homegrown food analysis presented in Chapter 12. Intake rates of total vegetables, tomatoes, and white potatoes were adjusted to account for the amount of these food items eaten as meat and grain mixtures as described in Appendix 9A. Food items/groups were identified in the CSFII data base according to USDA-defined food codes. Appendix 9B presents the codes used to determine the various food groups. Intake rates for these food items/groups represent intake of all forms of the product (i.e., home produced and commercially produced).

Individual identifiers in the database were used throughout the analysis to categorize populations according to demographics. These identifiers included identification number, region, urbanization, age, sex, race, body weight, weighting factor, season, and number of days that data were reported. Distributions of intake were determined for individuals who provided data for all three days of the survey. Individuals who did not provide information on body weight, or for which identifying information was unavailable, were excluded from the analysis. Three-day average intake rates were calculated for all individuals in the database for each of the food items/groups. These average daily intake rates were divided by each individual's body weight to generate intake rates in units of g/kg-day. The data were also weighted according to the three-day weights provided in the 1991 CSFII. USDA sample weights are calculated to account for inherent biases in the sample selection process, and to adjust the sample population to reflect the national population. Summary statistics for individual intake rates were generated on a per capita basis. That is, both users and non-users of the food item were included in the analysis. Mean consumer only intake rates may be calculated by dividing the mean per capita intake rate by the percent of the population consuming the food item of interest. Summary statistics included are: number of weighted and unweighted observations, percentage of the population using the food item/group being analyzed, mean intake rate, standard error, and percentiles of the intake rate distribution (i.e., 0, 1, 5, 10, 25, 50, 75, 90, 95, 99, and 100th percentile). Data were provided for the total population using the food item being evaluated and for several demographic groups including: various age groups (i.e., <1, 1-2, 3-5, 6-11, 12-19, 20-39, 40-69, and 70+ years); regions (i.e., Midwest, Northeast, South, and West); urbanizations (i.e., Central City, Nonmetropolitan, and Suburban; seasons (i.e., winter, spring, summer, and fall); and races (i.e., White, Black, Asian, Native American, and other). Table 9-1 provides the

codes, definitions, and a description of the data in these categories. The total numbers of individuals in the data set, by demographic group are presented in Table 9-2. The food analysis was accomplished using the SAS statistical programming system (SAS, 1990).

The results of this analysis are presented in Tables 9-3 and 9-4 for total fruits and vegetables, Table 9-5 for individual fruits and vegetables, and Tables 9-6 and 9-7 the various USDA categories and exposed/protected and root food items, respectively. These tables are presented at the end of this Chapter. The results are presented in units of g/kg-day. Thus, use of these data in calculating potential dose does not require the body weight factor to be included in the denominator of the average daily dose (ADD) equation. It should be noted that converting these intake rates into units of g/day by multiplying by a single average body weight is inappropriate, because individual intake rates were indexed to the actual body weights of the survey respondents. However, if there is a need to compare the total intake data presented here to other intake data in units of g/day, a body weight less than 70 kg (i.e., approximately 60 kg; calculated based on the number of respondents in each age category and the average body weights for these age groups, as presented in Chapter 7 of Volume I) should be used because the total survey population included children as well as adults.

The advantages of using the CSFII data set are that the data are expected to be generally representative of the U.S. population and that it includes data on a wide variety of food types. However, it should be noted that the survey covers only the 48 coterminous U.S. States; Hawaii, Alaska, and U.S. Territories are not included. The data set is the most recent of a series of publicly available data sets (i.e., NFCS 1977/78; NFCS 1987/88; CSFII 1989-91) from USDA, and should reflect current eating patterns in the United States. The data set includes three years of intake data combined. However, the CSFII data are based on a three day survey period. Short-term dietary data may not accurately reflect long-term eating patterns. This is particularly true for the tails (extremes) of the distribution of food intake. In addition, the adjustment for including mixtures adds uncertainty to the intake rate distributions. The calculation for including mixtures assumes that intake of any mixture includes all of the foods identified in Appendix Table A9-1 in the proportions specified in that



Code	Definition	Description
Code	Bernindon	Region <sup>a</sup>
1	Northeast	Includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont
2	Midwest	Includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin
3	South	Includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia
4	West	Includes Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming
		Urbanization
1	Central City	Cities with populations of 50,000 or more that is the main city within the metropolitan statistical area (MSA).
2	Suburban	An area that is generally within the boundaries of an MSA, but is not within the legal limit of the central city.
_	Sucuroun	An area that is not within an MSA.
3	Nonmetropolitan	
		Season
Spring	-	April, May, June
Summer	-	July, August, September
Fall	-	October, November, December
Winter	-	January, February, March
		Race
1		White (Caucasian)
2		Black
3		Asian and Pacific Islander
4		Native American, Aleuts, and Eskimos
5, 8, 9	Other/NA	Don't know, no answer, some other race



Table 9-2. V	Veighted and Unweighted Number of Observations fo Used in Analysis of Food Intake	or CSFII Data
Demographic Factor	Weighted	Unweighted
Total	242,707,000	11,912
Age		
<01	7,394,000	424
01-02	7,827,000	450
03-05	11795,000	603
06-11	21,830,000	1,147
12-19	26,046,000	1,250
20-39	78,680,000	3,555
40-69	71,899,000	3,380
70+	17,236,000	1,103
Season		
Fall	60,633,000	3,117
Spring	60,689,000	3,077
Summer	60,683,000	2,856
Winter	60,702,000	2,862
Urbanization		
Central City	73,410,000	3,607
Nonmetropolitan	53,993,000	3,119
Suburban	115,304,000	5,186
Race		
Asian	2,871,000	149
Black	29,721,000	1,632
Native American	2,102,000	171
Other/NA	7,556,000	350
White	200,457,000	9,610
Region		
Northeast	59,285,000	3,007
Midwest	50,099,000	2,180
South	83,741,000	4,203
West	49,582,000	2,522

table. This may under- or over-estimate intake of certain foods among some individuals.

# 9.2.3. Key Fruits and Vegetables Serving Size Study Based on the USDA NFCS

Pao et al. (1982) - Foods Commonly Eaten by Individuals - Using data gathered in the 1977-78 USDA NFCS, Pao et al. (1982) calculated distributions for the quantities of individual fruit and vegetables consumed per eating occasion by members of the U.S. population (i.e., serving sizes), over a 3-day period. The data were collected during NFCS home interviews of 37,874 respondents, who were asked to recall food intake for the day preceding the interview, and record food intake the day of the interview and the day after the interview.

Serving size data are presented on an as consumed (g/day) basis. The data presented in Table 9-8 are for all ages of the population, combined. If age-specific intake data are needed, refer to Pao et al. (1982). Although serving size data only are presented in this Handbook, percentiles for the average quantities of individual fruits and vegetables consumed by member of the U.S. population who had consumed these fruits and vegetables over a 3-day period can be found in Pao et al. (1982).

The advantages of using these data are that they were derived from the USDA NFCS and are representative of the U.S. population. This data set provides serving size distributions for a number of commonly eaten fruits and vegetables, but the list of foods is limited and does not account for fruits and vegetables included in complex food dishes. Also, these data represent the quantity of fruits and vegetables consumed per eating occasion. Although these estimates are based on USDA NFCS 1977-78 data, more recent data on serving size were not available. These estimates may be useful for assessing acute exposures to contaminants in specific foods, or other assessments where the amount consumed per eating occasion is necessary.

#### 9.2.4. Relevant Fruits and Vegetables Intake Studies

The U.S. EPA's Dietary Risk Evaluation System (DRES) - USEPA, Office of Pesticide Programs - The U.S. EPA, Office of Pesticide Programs (OPP) uses the Dietary Risk Evaluation System (formerly the Tolerance Assessment System) to assess the dietary risk of pesticide use as part of the pesticide registration process. OPP sets tolerances for specific pesticides on raw agricultural commodities based on estimates of dietary risk. These estimates are calculated using pesticide residue data for the food item of concern and relevant consumption data. Intake

rates are based primarily on the USDA 1977-1978 NFCS although intake rates for some food items are based on estimations from production volumes or other data (i.e., some items were assigned an arbitrary value of 0.000001 g/kg-day) (Kariya, 1992). OPP has calculated per capita intake rates of individual fruits and vegetables for 22 subgroups (age, regional, and seasonal) of the population by determining the composition of NFCS food items and disaggregating complex food dishes into their component raw agricultural commodities (RACs) (White et al. 1983).

The DRES per capita, as consumed intake rates for all age/sex/demographic groups combined are presented in Table 9-9. These data are based on both consumers and non consumers of these food items. Data for specific subgroups of the population are not presented here, but are available through OPP via direct request. The data in Table 9-9 may be useful for estimating the risks of exposure associated with the consumption of individual fruits and vegetables. It should be noted that these data are indexed to the actual body weights of the survey respondents and are expressed in units of grams of food consumed per kg bodyweight per day. Consequently, use of these data in calculating potential dose does not require the body weight factor in the denominator of the ADD equation. It should also be noted that conversion of these intake rates into units of g/day by multiplying by a single average body weight is not appropriate because the DRES data base did not rely on a single body weight for all individuals. Instead, DRES used the body weights reported by each individual surveyed to estimate consumption in units of g/kg-day.

The advantages of using these data are that complex food dishes have been disaggregated to provide intake rates for a very large number of fruits and vegetables. These data are also based on the individual body weights of the respondents. Therefore, the use of these data in calculating exposure to toxic chemicals may provide more representative estimates of potential dose per unit body weight. However, because the data are based on NFCS short-term dietary recall the same limitations discussed previously for other NFCS data sets also apply here. In addition, consumption patterns may have changed since the data were collected in 1977-78. OPP is in the process of translating consumption information from the USDA CSFII 1989-91 survey to be used in DRES.

Food and Nutrient Intakes of Individuals in One Day in the U.S., USDA (1980, 1992b) - USDA calculated mean intake rates for total fruits and total vegetables using NFCS data from 1977-78 and 1987-88 (USDA, 1980; USDA, 1992b). The mean total intake rates are presented



in Tables 9-10 and 9-11 for fruits and Tables 9-12 and 9-13 for vegetables. These values are based on intake data for one day from the 1977-78 and 1987-88 USDA Nationwide Food Consumption Surveys, respectively. Data from both surveys are presented here to demonstrate that although the 1987-88 survey had fewer respondents, the mean per capita intake rates for all individuals are in good agreement with the earlier survey. Also, slightly different age classifications were used in the two surveys providing a wider range of age categories from which exposure assessors may select appropriate intake rates. Tables 9-10 through 9-13 include both per capita intake rates and intake rates for consumersonly for various ages of individuals. Intake rates for consumers-only were calculated by dividing the per capita consumption rate by the fraction of the population using vegetables or fruits in a day. The average per capita vegetable intake rate is 201 g/day based on the 1977-78 data (USDA, 1980) and 182 g/day based on the 1987-88 data (USDA, 1992b). For fruits the average per capita intake rate is 142 g/day based on the two most recent USDA NFCSs (USDA, 1980; USDA, 1992b).

The advantages of using these data are that they provide intake estimates for all fruits and all vegetables combined. Again, these estimates are based on one-day dietary data which may not reflect usual consumption patterns.

U.S. EPA - Office of Radiation Programs - The U.S. EPA Office of Radiation Programs (ORP) has also used the USDA 1977-1978 NFCS to estimate daily food intake (U.S. EPA, 1984a; 1984b). ORP uses food consumption data to assess human intake of radio nuclides in foods. The 1977-1978 NFCS data have been reorganized by ORP, and food items have been classified according to the characteristics of radionuclide transport. Data for selected agricultural products are presented in Table 9-14 and Table 9-15. These data represent per capita, as consumed intake rates for total, leafy, exposed, and protected produce as well as total grains, breads, and cereals. Exposed produce refers to products (e.g., apples, pears, berries, etc.) that can intercept atmospherically deposited materials. The term protected refers to products (e.g., citrus fruit, carrots, corn, etc.) that are protected from deposition from the atmosphere. Although the fruit and vegetable classifications used in the study are somewhat limited in number, they provide alternative food categories that may be useful to exposure assessors. Because this study was based on the USDA NFCS, the limitations discussed previously regarding short-term dietary recall data also apply to the intake rates reported here. Also, consumption

patterns may have changed since the data were collected in 1977-78.

*U.S. EPA - Office of Science and Technology -* The U.S. EPA Office of Science and Technology (OST) within the Office of Water (formerly the Office of Water Regulations and Standards) used data from the FDA revision of the Total Diet Study Food Lists and Diets (Pennington, 1983) to calculate food intake rates (U.S. EPA, 1989). OST uses these consumption data in its risk assessment model for land application of municipal sludge. The FDA data used are based on the combined results of the USDA 1977-1978, NFCS and the second National Health and Nutrition Examination Survey (NHANES II), 1976-1980 (U.S. EPA, 1989). Because food items are listed as prepared complex foods in the FDA Total Diet Study, each item was broken down into its component parts so that the amount of raw commodities consumed could be determined. Table 9-16 presents intake rates of various fruit and vegetable categories for various age groups and estimated lifetime ingestion rates that have been derived by U.S. EPA. Note that these are per capita intake rates tabulated as grams dry weight/day. Therefore, these rates differ from those in the previous tables because U.S. EPA (1984a, 1984b) report intake rates on an as consumed basis.

The EPA-OST analysis provides intake rates for additional food categories and estimates of lifetime average daily intake on a per capita basis. In contrast to the other analyses of USDA NFCS data, this study reports the data in terms of dry weight intake rates. Thus, conversion is not required when contaminants are to be estimated on a dry weight basis. These data, however, may not reflect current consumption patterns.

Canadian Department of National Health and Welfare Nutrition Canada Survey - The Nutrition Canada Survey was conducted between 1970 and 1972 to "(a) examine the mean consumption of selected food groups and their contribution to nutrient intakes of Canadians, (b) examine patterns of food consumption and nutrient intake at various times of the day, and provide information on the changes in eating habits during pregnancy." (Canadian Department of National Health and Welfare, n.d.). The method used for collecting dietary intake data was 24-hour recall. The recall method relied on interview techniques in which the interviewee was asked to recall all foods and beverages consumed during the day preceding the interview. Intake rates were reported for various age/sex groups of the population and for pregnant women (Table 9-17). The report does not specify whether the values represent per capita or consumer-only intake rates.

However, they appear to be consistent with the as consumed intake rates for consumers-only reported by USDA (1980, 1992b). It should be noted that these data are also based on short-term dietary recall and are based on the Canadian population.

USDA, 1993b - Food Consumption, Prices, and Expenditures, 1970-92 - The USDA's Economic Research Service (ERS) has calculated the amount of food available for human consumption in the United States on an annual basis (USDA, 1993b). Supply and utilization balance sheets have been generated, based on the flow of food items from production to end uses for the years 1970 to 1992. Total available supply was estimated as the sum of production and imports (USDA, 1993b). The availability of food for human use commonly termed as "food disappearance" was determined by subtracting exported foods (USDA, 1993b). USDA (1993b) calculated the per capita food consumption by dividing the total food disappearance by the total U.S. population. USDA (1993b) estimated per capita consumption data for various fruit and vegetable products from 1970-1992 (1992 data are preliminary). In this section, the 1991 values, which are the most recent final data, are presented. Retail weight per capita data are presented in Table 9-18. These data have been derived from the annual per capita values in units of pounds per year, presented by USDA (1993b), by converting to units of g/day.

One of the limitations of this study is that disappearance data do not account for losses from the food supply from waste or spoilage. As a result, intake rates based on these data may overestimate daily consumption because they are based on the total quantity of marketable commodity utilized. Thus, these data represent bounding estimates of intake rates only. It should also be noted that per capita estimates based on food disappearance is not a direct measure of actual consumption or quantity ingested, instead the data are used as indicators of changes in usage over time (USDA, 1993b). An advantage of this study is that it provides per capita consumption rates for fruits and vegetables that are representative of long-term intake because disappearance data are generated annually.

AIHC, 1994 - Exposure Factors Sourcebook - The AIHC Sourcebook (AIHC, 1944) uses the data presented in the 1989 version of the Exposure Factors Handbook which reported data from the USDA 1977-78 NFCS. Distributions are provided in the @Risk format and the @Risk formula is also provided. In this Handbook, new analyses of more recent data from the USDA 1989/91 CSFII are presented. Numbers, however, cannot be directly

compared with previous values since the results from the new analysis are presented on a body weight basis.

The Sourcebook was classified as a relevant study because it was not the primary source for the data to make recommendations in this document. However, it can be used as an alternative source of information.

The advantage of using the CSFII and USDA NFCS data sets are that they are the largest publicly available data source on food intake patterns in the United States. Data are available for a wide variety of fruit and vegetable products and are intended to be representative of the U.S. population.

# 9.2.5. Conversion Between As Consumed and Dry Weight Intake Rates

As noted previously, intake rates may be reported in terms of units as consumed or units of dry weight. It is essential that exposure assessors be aware of this difference so that they may ensure consistency between the units used for intake rates and those used for concentration data (i.e., if the unit of food consumption is grams dry weight/day, then the unit for the amount of pollutant in the food should be grams dry weight).

If necessary, as consumed intake rates may be converted to dry weight intake rates using the moisture content percentages presented in Table 9-19 and the following equation:

$$IR_{dw} = IR_{ac}^* [(100-W)/100]$$
 (Eqn. 9-1)

"Dry weight" intake rates may be converted to "as consumed" rates by using:

$$IR_{ac} = IR_{dw}/[(100-W)/100]$$
 (Eqn. 9-2)

where:

 $IR_{dw}$  = dry weight intake rate;

IR<sub>ac</sub> = as consumed intake rate; and

W = percent water content.

#### 9.3. RECOMMENDATIONS

The CSFII data described in this section was used in selecting recommended fruit and vegetable intake rates for the general population and various subgroups of the United



States population. The general design of both key and relevant studies are summarized in Table 9-20. Table 9-21 presents a summary of the recommended values for fruit and vegetable intake and Table 9-22 presents the confidence ratings for the fruit and vegetable intake recommendations. Based on the CSFII 1989-91, the recommended per capita fruit intake rate for the general population is 3.4 g/kg-day and the recommended per capita vegetable intake rate for the general population is 4.3 g/kg-day. Per capita intake rates for specific food items, on a g/kg-day basis, may be obtained from Table 9-5. Percentiles of the per capita intake rate distribution in the general population for total fruits and total vegetables are presented in Tables 9-3 and 9-4. From these tables, the 95th percentile intake rates for fruits and vegetables are 12 g/kg-day and 10 g/kg-day, respectively. It is important to note that the distributions presented in Tables 9-3 through 9-4 are based on data collected over a 3-day period and may not necessarily reflect the long-term distribution of average daily intake rates. However, for these broad categories of food (i.e., total fruits and total vegetables), because they are eaten on a daily basis throughout the year with minimal seasonality, the short term distribution may be a reasonable approximation of the long-term distribution, although it will display somewhat increased variability. This implies that the upper percentiles shown here will tend to overestimate the corresponding percentiles of the true long-term distribution. Intake rates for the home-produced form of these fruit and vegetable products are presented in Volume II. Chapter 4.

This section also presents recommendations for serving size for various fruits and vegetables. These recommendations are based on the USDA NFCS 1977-78 data. Table 9-23 presents the confidence ratings for the serving size recommendations. Percentiles of the serving size, as well as mean values can be obtained from Table 9-8.

#### 9.4. REFERENCES FOR CHAPTER 9

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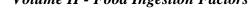
			Table 9	-3. Intal	ke of Tot	al Fruit	Table 9-3. Intake of Total Fruits (g/kg-day)	(A)					
Population	Percent												
Group	Consuming	Mean	SE	P1	P5	P10	P25	P50	P75	P90	P95	P99	P100
Total	%0.69	3.381	0.068	0	0	0	0	1.68	4.16	7.98	12.44	26.54	210.72
Age													
< 01	%6'.29	14.898	1.285	0	0	0	0	8.80	21.9	35.98	42.77	88.42	210.72
01-02	76.7%	11.836	0.582	0	0	0	2.80	9.76	17.9	25.70	30.69	52.27	80.19
03-05	%8.08	8.422	0.364	0	0	0	2.22	6.37	12.5	19.29	22.78	32.83	52.87
06-11	79.2%	5.047	0.160	0	0	0	1.30	3.86	7.17	11.79	14.49	21.53	30.37
12-19	62.6%	2.183	0.095	0	0	0	0	1.36	3.38	5.66	7.24	11.80	16.86
20-39	58.8%	1.875	0.056	0	0	0	0	1.06	2.82	5.08	6.43	10.26	41.58
40-69	71.0%	2.119	0.051	0	0	0	0	1.36	3.24	5.20	6.73	10.52	23.07
70+	83.3%	2.982	0.087	0	0	0	68.0	2.42	4.28	6.77	8.31	11.89	15.00
Season													
Fall	%6'89	3.579	0.169	0	0	0	0	1.66	3.94	8.20	13.41	32.62	204.28
Spring	68.3%	3.249	0.116	0	0	0	0	1.73	4.14	7.43	12.22	23.71	88.42
Summer	70.4%	3.381	0.131	0	0	0	0	1.80	4.29	7.87	12.26	23.11	210.72
Winter	68.4%	3.314	0.119	0	0	0	0	1.52	4.27	8.33	12.17	26.54	75.52
Urbanization													
Central City	%8'89	3.288	0.114	0	0	0	0	1.66	4.00	7.82	11.94	23.73	210.72
Nonmetropolitan	67.4%	3.107	0.113	0	0	0	0	1.51	3.94	7.52	12.25	26.04	84.34
Suburban	70.1%	3.567	0.113	0	0	0	0	1.80	4.40	8.43	13.19	28.13	204.28
Race													
Asian	77.2%	5.839	0.632	0	0	0	1.24	4.20	92.9	17.30	20.65	29.61	38.95
Black	63.7%	3.279	0.188	0	0	0	0	1.51	4.25	7.70	12.34	26.54	210.72
Native American	61.4%	3.319	0.490	0	0	0	0	1.58	4.31	7.57	16.02	22.66	29.24
Other/NA	64.9%	4.027	0.465	0	0	0	0	1.77	5.10	10.92	14.96	47.78	53.89
White	70.1%	3.337	0.075	0	0	0	0	1.66	4.06	7.87	12.21	26.48	204.28
Region													
Midwest	%6.69	3.236	0.120	0	0	0	0	1.58	4.07	7.87	11.30	28.64	84.34
Northeast	73.9%	3.665	0.143	0	0	0	0.07	1.84	4.70	8.37	12.75	31.67	88.42
South	62.0%	3.017	0.105	0	0	0	0	1.42	3.80	7.39	11.67	24.67	210.72
West	75.4%	3.880	0.187	0	0	0	0.17	2.08	4.45	9.18	14.61	25.49	204.28



			Tal	ble 9-4.	Intake of	Total Veg	Table 9-4. Intake of Total Vegetables (g/kg-day)	(g-day)					
Population	Percent												
Group	Consuming	Mean	SE	P1	P5	P10	P25	P50	P75	P90	P95	P99	P100
Total	97.2%	4.259	0.029	0	0.75	1.29	2.26	3.60	5.37	7.93	10.00	15.65	44.99
Age													
< 01	74.8%	6.802	0.375	0	0	0	0	5.52	10.4	15.27	19.29	29.61	44.99
01-02	95.6%	7.952	0.228	0	1.33	2.32	4.65	7.28	10.2	14.77	16.32	21.24	32.10
03-05	97.2%	7.125	0.200	0	1.11	2.15	3.79	5.83	9.64	13.87	15.43	25.09	35.56
06-11	92.6%	5.549	0.109	0	1.03	1.72	3.09	4.82	7.31	10.06	11.74	18.39	31.30
12-19	98.1%	3.807	0.070	0	0.85	1.30	2.16	3.49	4.71	6.80	8.52	12.26	27.84
20-39	98.2%	3.529	0.037	0	0.75	1.22	2.06	3.16	4.54	6.36	7.63	10.69	17.07
40-69	98.3%	3.741	0.039	0	0.85	1.34	2.19	3.43	4.94	6.56	7.78	10.91	24.51
70+	98.3%	4.068	0.071	0	96.0	1.47	2.47	3.67	5:35	6.89	8.17	11.96	18.92
Season													
Fall	97.8%	4.366	0.063	0	98.0	1.31	2.28	3.56	5.28	8.33	10.52	17.95	35.56
Spring	%6.96	4.095	0.055	0	0.72	1.20	2.19	3.45	5.19	7.67	9.85	15.33	44.99
Summer	92.0%	4.181	0.059	0	0.58	1.16	2.21	3.54	5.34	7.73	9.54	15.14	41.68
Winter	92.0%	4.394	0.056	0	98.0	1.40	2.36	3.78	5.67	8.03	69.6	15.23	29.69
Urbanization													
Central City	97.4%	4.059	0.053	0	0.67	1.22	2.08	3.34	5.17	7.74	9.51	16.04	44.99
Nonmetropolitan	an 96.3%	4.450	0.060	0	98.0	1.41	2.4	3.72	5.66	8.28	10.08	16.27	35.56
Suburban	92.6%	4.296	0.044	0	0.82	1.31	2.30	3.64	5.38	7.86	10.17	15.39	41.68
Race													
Asian	93.3%	4.913	0.330	0	0	1.53	2.06	3.66	7.52	10.32	14.84	15.43	16.76
Black	96.1%	4.228	0.093	0	0.36	0.85	1.99	3.19	5.46	8.80	11.35	18.39	32.10
Native American	an 87.1%	4.880	0.277	0	0	0.58	2.40	4.22	6.85	8.87	11.37	13.89	21.77
Other/NA	%9.96	4.762	0.183	0	0	1.11	2.46	4.24	6.20	9.33	11.93	15.02	22.14
White	%9'.26	4.229	0.031	0	98.0	1.37	2.30	3.60	5.32	7.74	9.75	15.31	44.99
Region													
Midwest	92.0%	4.123	0.061	0	0.75	1.20	2.09	3.35	5.16	8.03	6.87	16.90	35.56
Northeast	97.2%	4.494	0.073	0	69.0	1.29	2.37	3.77	5.70	8.42	11.00	15.86	41.68
South	97.4%	4.268	0.047	0	98.0	1.39	2.31	3.66	5.32	7.76	9.80	15.31	44.99
West	6.9%	4.168	0.060	0	0.60	1.22	2.25	3.57	5.38	7.78	9.53	15.28	35.56
NOTE: SE	SE = Standard error												
P.	P = Percentile of the distribution	distribution	_										
Source: Based	Source: Based on EPA's analyses of the 1989/91 CSFII	s of the 198	9/91 CSFII										



				Table 9-5. Intake of Individual Fruits and Vegetables (g/kg-day)	ike of Individ	ad rimis an	I Vegetaures (g/n	g-uay)				
		Apple			Asparagus			Beets			Broccoli	
Populatio n Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	28.4%	0.854	0.052	1.5%	0.012	0.008	1.8%	600.0	0.010	10.9%	0.107	0.012
<b>Age</b> < 01	41.7%	5.042	0.823	0:0%	0	0	1.2%	0.045	0.296	4.2%	0.142	0.224
01-02	42.9%	4.085	0.508	0.2%	0.003	0.041	0.7%	0.006	0.055	7.6%	0.234	0.134
03-05	44.1%	3.004	0.312	0.2%	0.001	0.038	0.5%	0.006	0.056	10.1%	0.307	0.118
06-11	41.6%	1.501	0.123	0.3%	0.001	0.019	%6.0	0.008	0.040	6.8%	0.098	0.052
12-19	23.0%	0.394	0.062	0.3%	0.003	0.033	%9.0	0.001	0.010	8.2%	0.065	0.028
20-39	21.3%	0.337	0.033	1.1%	0.008	0.012	1.3%	0.004	0.007	11.4%	0.081	0.015
40-69	26.0%	0.356	0.027	2.5%	0.025	0.016	2.4%	0.009	0.009	13.8%	0.102	0.016
70 +	30.8%	0.435	0.052	3.5%	0.026	0.028	5.2%	0.029	0.022	11.8%	0.115	0.028
Season												
Fall	33.7%	1.094	0.116	0.8%	0.005	0.013	1.2%	0.009	0.040	10.8%	0.089	0.024
Spring	25.9%	0.667	0.078	2.7%	0.023	0.017	2.0%	0.009	0.012	11.7%	0.122	0.022
Summer	23.2%	0.751	0.122	1.1%	0.006	0.014	1.7%	0.005	0.008	8.8%	0.120	0.032
Winter	30.4%	0.905	0.095	1.3%	0.015	0.018	2.3%	0.011	0.013	12.3%	0.098	0.020
Urbanization												
Central City	27.4%	0.749	0.081	1.1%	0.013	0.018	1.3%	0.008	0.031	10.6%	0.119	0.024
Nonmetropolitan	26.8%	0.759	0.104	1.3%	0.011	0.015	1.8%	0.010	0.013	%0.6	0.067	0.017
Suburban	29.9%	0.965	0.083	1.8%	0.013	0.012	2.0%	0.008	0.009	12.2%	0.119	0.019
Race												
Asian	38.3%	0.871	0.327	2.7%	0.067	0.123	0.7%	0.040	0.320	15.4%	0.209	0.166
Black	22.7%	0.688	0.159	0.3%	0.003	0.019	1.1%	0.007	0.024	8.3%	0.154	0.047
Native American	20.5%	0.407	0.273	%0.0	0	0	1.2%	0.003	0.028	5.3%	0.021	0.045
Other/NA	24.9%	0.964	0.256	%9.0	0.001	0.009	%6.0	0.015	0.101	10.3%	0.180	0.100
White	29.4%	0.879	0.057	1.7%	0.013	0.009	1.9%	0.008	0.010	11.4%	0.097	0.012
Region												
Midwest	29.1%	0.782	0.082	1.8%	0.015	0.016	%8.0	0.010	0.049	8.4%	0.077	0.025
Northeast	31.5%	0.953	0.116	1.6%	0.015	0.022	2.3%	0.008	0.012	13.5%	0.113	0.026
South	23.6%	0.828	0.099	1.0%	0.010	0.014	1.8%	0.009	0.011	8.6	0.109	0.022
West	32.7%	0.885	0.121	1.8%	0.012	0.015	2.4%	0.008	0.009	13.4%	0.135	0.025





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			Table 9-:	Table 9-5. Intake of Individual Fruits and Vegetables (g/kg-day) (continued)	idual Fruits	und Vegetabl	es (g/kg-day) (c	ontinued)				
		Cabbage			Carrots			Corn		C	Cucumbers	
Population Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	12.2%	0.088	0.009	16.9%	0.115	0.010	24.1%	0.206	0.010	15.8%	0.063	0.006
Age												
> 01	2.4%	0.023	0.078	13.4%	0.379	0.165	17.5%	0.356	0.128	2.4%	0.021	0.107
01-02	5.1%	0.086	0.089	13.3%	0.214	0.085	32.9%	0.587	0.091	7.3%	0.062	0.069
03-05	7.5%	0.107	0.081	15.1%	0.148	0.052	31.5%	0.490	0.070	12.1%	0.083	0.046
06-11	7.5%	0.049	0.027	17.1%	0.154	0.037	35.8%	0.367	0.032	14.9%	0.086	0.032
12-19	8.5%	0.065	0.028	11.8%	0.056	0.018	24.0%	0.173	0.024	12.6%	0.050	0.017
20-39	10.6%	0.070	0.015	15.2%	0.076	0.013	23.8%	0.154	0.013	17.0%	0.057	0.000
40-69	17.1%	0.115	0.015	20.1%	0.120	0.016	20.4%	0.138	0.013	19.8%	0.070	0.008
+ 0/	21.1%	0.151	0.025	21.3%	0.132	0.022	19.0%	0.140	0.027	14.8%	0.055	0.016
Season												
Fall	12.3%	0.092	0.019	17.7%	0.100	0.017	23.6%	0.171	0.018	14.3%	0.056	0.014
Spring	12.4%	0.086	0.018	16.5%	0.117	0.022	24.7%	0.204	0.019	15.8%	0.060	0.000
Summer	12.3%	0.097	0.018	13.9%	0.083	0.017	24.8%	0.244	0.022	19.0%	0.092	0.014
Winter	11.9%	0.076	0.014	19.2%	0.160	0.022	23.2%	0.205	0.020	14.3%	0.044	0.010
Urbanization												
Central City	10.8%	0.073	0.015	15.5%	0.111	0.019	22.4%	0.182	0.017	15.1%	0.061	0.011
Nonmetropolitan	13.7%	0.102	0.016	14.4%	0.095	0.017	27.6%	0.255	0.020	15.1%	0.071	0.013
Suburban	12.4%	0.091	0.014	19.2%	0.127	0.015	23.1%	0.198	0.015	16.7%	0.060	0.008
Race												
Asian	27.5%	0.400	0.100	28.2%	0.177	0.101	14.1%	0.134	0.080	16.1%	0.065	0.036
Black	13.9%	0.129	0.029	7.0%	990.0	0.036	24.6%	0.226	0.028	7.8%	0.040	0.021
Native American	4.7%	0.037	0.068	11.1%	0.097	0.075	30.4%	0.373	0.099	6.4%	0.037	0.042
Other/NA	%0.9	0.041	0.044	12.9%	0.104	0.063	16.9%	0.160	0.065	10.9%	0.038	0.029
White	12.1%	0.080	0.009	18.6%	0.122	0.011	24.3%	0.204	0.011	17.5%	0.067	0.007
Region												
Midwest	10.1%	0.065	0.016	16.2%	0.100	0.018	26.8%	0.242	0.020	15.1%	0.074	0.014
Northeast	11.6%	0.083	0.022	19.0%	0.151	0.027	23.3%	0.208	0.026	18.9%	0.097	0.018
South	14.4%	0.106	0.015	12.4%	0.074	0.015	24.9%	0.219	0.016	13.8%	0.042	0.007
West	11.8%	0.088	0.016	23.3%	0.166	0.021	20.1%	0.138	0.018	17.2%	0.050	0.011

Lettuce				Table 9-	Table 9-5. Intake of Individual Fruits and Vegetables (g/kg-day) (continued)	dividual F1	ruits and \	Vegetables (g/k	g-day) (cont	inued)			
con Group         Percent         Mean         SE         Percent         Mean         Resent         Percent         Percent         Consuming         Consuming <th< th=""><th></th><th></th><th>Lettuce</th><th></th><th>Lin</th><th>ma Beans</th><th></th><th></th><th>Okra</th><th></th><th></th><th>Onions</th><th></th></th<>			Lettuce		Lin	ma Beans			Okra			Onions	
41.3%         0.224         0.006         0.9%         0.006         0.007         1.3%           6.8%         0.025         0.026         0.5%         0.005         0.05         0.5%           18.2%         0.116         0.039         0.4%         0.006         0.069         0.2%           29.4%         0.191         0.031         0.09         0.0         0         0.7%           29.4%         0.191         0.031         0.09         0.00         0         0.7%           40.4%         0.191         0.031         0.00         0         0         0         0.7%           40.4%         0.194         0.034         0.010         0.00         0	Popuktion Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
6.8% 0.025 0.026 0.5% 0.005 0.058 0.5% 0.005 0.005 0.005 0.005 0.2% 0.005 0.0116 0.039 0.4% 0.006 0.006 0.006 0.02% 0.0116 0.031 0.03% 0.002 0.017 0.03% 0.024 0.019 0.031 0.007 0.03% 0.001 0.007 0.003 0.019 1.4% 0.187 0.014 0.5% 0.005 0.012 1.0% 0.024 0.010 1.5% 0.005 0.012 1.0% 0.024 0.017 1.9% 0.009 0.019 1.4% 0.25% 0.017 1.9% 0.009 0.009 0.019 1.3% 0.025% 0.011 1.0% 0.000 0.014 2.2% 0.25% 0.011 1.0% 0.000 0.014 2.2% 0.024 0.013 1.0% 0.000 0.014 2.2% 0.024 0.013 1.0% 0.000 0.007 0.013 1.3% 0.024 0.005 0.000 0.004 0.011 1.0% 0.000 0.	Total	41.3%	0.224	0.006	%6.0	0.006	0.007	1.3%	0.009	0.007	17.4%	0.040	0.003
6.8% 0.025 0.026 0.5% 0.005 0.055 0.5% 18.2% 0.016 0.039 0.4% 0.006 0.006 0.2% 0.23% 0.24% 0.0116 0.033 0.4% 0.006 0.006 0.2% 0.024% 0.0116 0.033 0.4% 0.000 0.017 0.3% 0.024% 0.018 0.014 0.5% 0.003 0.019 1.4% 0.241 0.010 0.7% 0.003 0.019 1.4% 0.254 0.010 0.7% 0.005 0.012 1.0% 0.024 0.017 0.03% 0.017 1.9% 0.009 0.019 0.019 1.4% 0.259 0.011 1.0% 0.008 0.019 2.7% 0.259 0.011 1.0% 0.009 0.009 0.007 0.013 1.3% 0.023 0.013 1.0% 0.000 0.007 0.013 1.3% 0.024 0.016 0.009 0.5% 0.004 0.011 1.0% 0.008 0.015 0.08% 0.024 0.016 0.09% 0.000 0.007 0.013 1.3% 0.024 0.009 0.5% 0.004 0.001 1.2% 0.034 0.044 0.09% 0.006 0.021 2.1% 0.044 0.034 0.00% 0.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Age												
18.2% 0.116 0.039 0.4% 0.006 0.069 0.2% 2.4% 0.191 0.031 0.0% 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	< 01	%8.9	0.025	0.026	0.5%	0.005	0.055	0.5%	0.003	0.040	1.9%	0.004	0.022
29.4% 0.191 0.031 0.0% 0 0 0.7% 36.3% 0.247 0.027 0.3% 0.002 0.017 0.3% 40.4% 0.187 0.014 0.5% 0.003 0.019 1.4% 44.4% 0.231 0.010 0.7% 0.005 0.012 1.0% 51.0% 0.264 0.010 1.5% 0.010 0.013 1.8% 37.4% 0.203 0.017 1.9% 0.008 0.019 2.7% 43.5% 0.259 0.011 1.0% 0.008 0.015 0.8% tropolitan 39.9% 0.243 0.013 1.0% 0.004 0.011 1.0% tropolitan 39.9% 0.242 0.009 0.5% 0.004 0.011 1.0%  American 42.7% 0.146 0.034 0.0% 0.006 0.014 1.2% 40.3% 0.231 0.050 0.0% 0.006 0.013 1.8% American 42.7% 0.146 0.034 0.0% 0.006 0.001 1.7% 43.7% 0.239 0.007 1.0% 0.006 0.007 1.1%  st 36.1% 0.191 0.012 0.4% 0.005 0.006 0.007 1.1%  st 36.1% 0.191 0.012 0.4% 0.006 0.001 1.3% st 36.1% 0.191 0.012 0.4% 0.006 0.001 3.2% st 36.1% 0.191 0.012 0.4% 0.006 0.001 3.2% st 36.1% 0.191 0.012 0.4% 0.006 0.001 3.2% st 36.1% 0.191 0.012 0.4% 0.003 0.013 0.013 3.2%	01-02	18.2%	0.116	0.039	0.4%	0.006	0.069	0.2%	0.004	0.068	6.4%	0.012	0.017
36.3%       0.247       0.027       0.3%       0.002       0.017       0.3%         40.4%       0.187       0.014       0.5%       0.003       0.019       1.4%         40.4%       0.187       0.010       0.7%       0.005       0.012       1.0%         51.0%       0.264       0.010       1.5%       0.010       0.013       1.8%         37.4%       0.203       0.017       1.9%       0.008       0.019       2.7%         43.5%       0.259       0.011       1.0%       0.008       0.015       0.8%         43.5%       0.259       0.011       1.0%       0.006       0.014       2.2%         44.5%       0.243       0.013       1.0%       0.007       0.013       1.3%         City       37.9%       0.024       0.019       0.09       0.5%       0.004       0.011       1.0%         Los       0.242       0.013       1.0%       0.004       0.015       0.018       1.2%         Anerican       40.3%       0.231       0.050       0.09       0.09       0.004       0.011       1.0%         An       41.1%       0.146       0.034       0.09       0.09 <td>03-05</td> <td>29.4%</td> <td>0.191</td> <td>0.031</td> <td>%0.0</td> <td>0</td> <td>0</td> <td>0.7%</td> <td>0.013</td> <td>0.046</td> <td>8.0%</td> <td>0.023</td> <td>0.016</td>	03-05	29.4%	0.191	0.031	%0.0	0	0	0.7%	0.013	0.046	8.0%	0.023	0.016
40.4%         0.187         0.014         0.5%         0.003         0.019         1.4%           44.4%         0.231         0.010         0.7%         0.005         0.012         1.0%           51.0%         0.264         0.010         1.5%         0.010         0.013         1.8%           37.4%         0.203         0.017         1.9%         0.008         0.019         2.7%           r         43.5%         0.259         0.011         1.0%         0.008         0.015         0.8%           A1.5%         0.218         0.012         0.9%         0.006         0.015         0.8%           Cliy         37.9%         0.013         1.0%         0.006         0.015         0.8%           Lropolitan         39.9%         0.221         0.012         1.5%         0.004         0.011         1.0%           Liy         0.242         0.012         1.5%         0.004         0.011         1.0%         0.004         0.011         1.0%           American         42.7%         0.242         0.009         0.5%         0.004         0.011         1.0%           American         42.7%         0.146         0.09         0.09	06-11	36.3%	0.247	0.027	0.3%	0.002	0.017	0.3%	0.005	0.028	9.7%	0.033	0.015
44.4%         0.231         0.010         0.7%         0.005         1.0%           51.0%         0.264         0.010         1.5%         0.010         0.013         1.8%           37.4%         0.203         0.017         1.9%         0.008         0.019         2.7%           38.1%         0.175         0.010         0.8%         0.004         0.010         0.9%           43.5%         0.259         0.011         1.0%         0.008         0.015         0.8%           repolitan         44.3%         0.243         0.013         1.0%         0.006         0.014         2.2%           repolitan         39.9%         0.221         0.012         1.0%         0.006         0.013         1.3%           repolitan         39.9%         0.221         0.012         1.5%         0.015         0.018         1.3%           an         44.6%         0.231         0.009         0.5%         0.004         0.011         1.0%           American         42.7%         0.044         0.9%         0.006         0.011         1.0%           American         42.7%         0.044         0.09         0.00         0.004         0.004	12-19	40.4%	0.187	0.014	0.5%	0.003	0.019	1.4%	0.011	0.027	12.2%	0.030	0.010
51.0%       0.264       0.010       1.5%       0.010       0.013       1.8%         37.4%       0.203       0.017       1.9%       0.008       0.019       2.7%         1       33.1%       0.175       0.010       0.8%       0.004       0.010       0.9%         1       43.5%       0.259       0.011       1.0%       0.008       0.015       0.8%         2ation       41.5%       0.243       0.013       1.0%       0.006       0.014       2.2%         ropolitan       39.9%       0.196       0.009       0.5%       0.004       0.013       1.3%         ropolitan       39.9%       0.196       0.009       0.5%       0.004       0.013       1.3%         ropolitan       39.9%       0.242       0.009       0.5%       0.004       0.01       1.2%         ropolitan       39.9%       0.242       0.009       0.9%       0.004       0.01       1.2%         Annerican       42.7%       0.146       0.034       0.0%       0       0       0.0%         Annerican       42.7%       0.146       0.034       0.0%       0       0       0.0%         Annerican <t< td=""><td>20-39</td><td>44.4%</td><td>0.231</td><td>0.010</td><td>0.7%</td><td>0.005</td><td>0.012</td><td>1.0%</td><td>0.008</td><td>0.016</td><td>20.5%</td><td>0.040</td><td>0.005</td></t<>	20-39	44.4%	0.231	0.010	0.7%	0.005	0.012	1.0%	0.008	0.016	20.5%	0.040	0.005
37.4%         0.203         0.017         1.9%         0.008         0.019         2.7%           1         38.1%         0.175         0.010         0.8%         0.004         0.010         0.9%           1         43.5%         0.259         0.011         1.0%         0.008         0.015         0.8%           2ation         41.5%         0.243         0.013         1.0%         0.006         0.014         2.2%           cropolitan         39.9%         0.196         0.009         0.5%         0.004         0.013         1.3%           uropolitan         39.9%         0.196         0.009         0.5%         0.004         0.013         1.3%           uropolitan         39.9%         0.242         0.009         0.5%         0.004         0.011         1.0%           an         44.6%         0.242         0.009         0.5%         0.004         0.001         1.2%           American         42.7%         0.146         0.034         0.0%         0         0         0.0%           AA         41.1%         0.146         0.034         0.0%         0         0         0         0         0         0         0	40-69	51.0%	0.264	0.010	1.5%	0.010	0.013	1.8%	0.008	0.010	24.0%	0.054	0.005
38.1%       0.175       0.010       0.8%       0.004       0.010       0.9%         43.5%       0.259       0.011       1.0%       0.008       0.015       0.8%         zation       41.5%       0.243       0.012       0.9%       0.006       0.014       2.2%         cropolitan       37.9%       0.243       0.013       1.0%       0.007       0.013       1.3%         cropolitan       39.9%       0.221       0.012       1.5%       0.015       0.018       1.8%         an       44.6%       0.242       0.009       0.5%       0.004       0.011       1.0%         American       42.7%       0.231       0.050       0.9%       0.006       0.027       1.2%         American       42.7%       0.146       0.034       0.0%       0       0       4.7%         A       41.1%       0.186       0.027       0.0%       0       0       0.0%         A       41.1%       0.186       0.017       0.006       0.007       0.11%       0.0%         A       43.7%       0.239       0.007       0.006       0.003       0.013       0.013       0.013         A	+ 0/	37.4%	0.203	0.017	1.9%	0.008	0.019	2.7%	0.015	0.021	16.5%	0.043	0.012
38.1%         0.175         0.010         0.8%         0.004         0.010         0.9%           er         43.5%         0.259         0.011         1.0%         0.008         0.015         0.8%           er         42.3%         0.218         0.011         1.0%         0.006         0.015         0.8%           rization         41.5%         0.243         0.013         1.0%         0.007         0.013         1.3%           atropolitan         39.9%         0.196         0.009         0.5%         0.004         0.011         1.0%           etropolitan         39.9%         0.221         0.012         1.5%         0.015         0.018         1.3%           an         44.6%         0.242         0.009         0.5%         0.004         0.011         1.0%           American         42.7%         0.146         0.034         0.0%         0         0         0.0%           NA         41.1%         0.186         0.027         0.0%         0         0         0.0%           NA         41.1%         0.186         0.024         0.01         0         0         0           sst         35.3%         0.246	Season												
ter 43.5% 0.259 0.011 1.0% 0.008 0.015 0.8% cr 42.3% 0.218 0.012 0.9% 0.006 0.014 2.2% cr 41.5% 0.243 0.013 1.0% 0.007 0.003 1.3% ctropolitan 39.9% 0.221 0.012 1.5% 0.004 0.011 1.0% ctropolitan 39.9% 0.221 0.012 1.5% 0.004 0.011 1.0% ctropolitan 39.9% 0.221 0.012 1.5% 0.005 0.005 1.2% and 44.6% 0.242 0.009 0.9% 0.006 0.001 1.2% and 42.7% 0.146 0.034 0.0% 0 0 0 4.7% 0.006 0.021 2.1% 0.004 0.007 1.1% 0.186 0.027 0.0% 0 0 0 1.7% 0.186 0.027 0.0% 0.006 0.007 1.1% and 43.7% 0.239 0.007 1.0% 0.006 0.005 0.019 0.2% ast 43.9% 0.246 0.014 0.5% 0.003 0.013 0.06% ast 43.9% 0.210 0.009 1.8% 0.011 0.011 3.2% 0.000 0.001 0.0	Fall	38.1%	0.175	0.010	0.8%	0.004	0.010	%6.0	0.004	0.009	16.3%	0.045	0.007
er 42.3% 0.218 0.012 0.9% 0.006 0.014 2.2%  lization  ld City 37.9% 0.243 0.013 1.0% 0.007 0.013 1.3%  ld City 37.9% 0.196 0.009 0.5% 0.004 0.011 1.0%  etropolitan 39.9% 0.221 0.012 1.5% 0.015 0.018 1.8%  ban 44.6% 0.242 0.009 0.9% 0.004 0.011 1.0%  27.1% 0.242 0.009 0.9% 0.004 0.007 1.2%  American 42.7% 0.134 0.014 0.9% 0.006 0.021 2.1%  NA 41.1% 0.186 0.027 0.0% 0 0 0.1.7%  A 43.7% 0.239 0.007 1.0% 0.006 0.007 1.1%  sst 36.1% 0.191 0.012 0.4% 0.005 0.013 0.6%  sast 43.9% 0.210 0.009 1.8% 0.011 0.011 3.2%  sast 39.3% 0.210 0.009 1.8% 0.011 0.011 3.2%	Spring	43.5%	0.259	0.011	1.0%	0.008	0.015	0.8%	0.009	0.020	19.7%	0.040	0.005
rization         41.5%         0.243         0.013         1.0%         0.007         0.013         1.3%           uization         d City         37.9%         0.196         0.009         0.5%         0.004         0.011         1.0%           etropolitian         39.9%         0.221         0.012         1.5%         0.015         0.018         1.8%           oan         44.6%         0.242         0.009         0.9%         0.004         0.018         1.8%           san         40.3%         0.242         0.009         0.9%         0.004         0.01         1.2%           American         42.7%         0.134         0.014         0.9%         0.006         0.21%         2.1%           NA         41.1%         0.186         0.027         0.0%         0         0         0.0%           NA         41.1%         0.186         0.077         1.0%         0.006         0.01         1.7%           NA         41.1%         0.186         0.007         1.0%         0.006         0.007         1.1%           st         36.1%         0.246         0.014         0.5%         0.005         0.019         0.028 <t< td=""><td>Summer</td><td>42.3%</td><td>0.218</td><td>0.012</td><td>%6.0</td><td>0.006</td><td>0.014</td><td>2.2%</td><td>0.016</td><td>0.015</td><td>18.7%</td><td>0.040</td><td>0.005</td></t<>	Summer	42.3%	0.218	0.012	%6.0	0.006	0.014	2.2%	0.016	0.015	18.7%	0.040	0.005
utzation           al City         37.9%         0.196         0.009         0.5%         0.004         0.011         1.0%           etropolitan         39.9%         0.221         0.012         1.5%         0.015         0.018         1.8%           oan         44.6%         0.242         0.009         0.9%         0.004         0.018         1.8%           an         40.3%         0.231         0.050         0.0%         0         4.7%           American         42.7%         0.146         0.034         0.0%         0         0         4.7%           NA         41.1%         0.186         0.027         0.0%         0         0         0.0%           NA         43.7%         0.239         0.007         1.0%         0.006         0.017         1.1%           sst         36.1%         0.191         0.012         0.4%         0.005         0.019         0.2%           sst         39.3%         0.210         0.009         0.011         0.011         0.011         0.011         0.011         0.011         0.011         0.011         0.011         0.03         0.03         0.03         0.05         0.09	Winter	41.5%	0.243	0.013	1.0%	0.007	0.013	1.3%	0.006	0.012	14.8%	0.033	0.006
ul City         37.9%         0.196         0.009         0.5%         0.004         0.011         1.0%           etropolitan         39.9%         0.221         0.012         1.5%         0.015         0.018         1.8%           oan         44.6%         0.242         0.009         0.9%         0.004         0.007         1.2%           American         44.6%         0.231         0.050         0.0%         0         4.7%           NA         41.1%         0.146         0.034         0.0%         0         0         4.7%           NA         41.1%         0.186         0.027         0.0%         0         0         1.7%           NA         43.7%         0.239         0.007         1.0%         0.006         0.017         1.1%           sst         36.1%         0.191         0.012         0.4%         0.005         0.019         0.2%           sst         43.9%         0.246         0.014         0.5%         0.003         0.013         0.6%           sst         43.9%         0.210         0.004         0.003         0.013         0.013         0.05%           sst         43.9%         0.246	Urbanization												
etropolitan 39.9% 0.221 0.012 1.5% 0.015 0.018 1.8% and 44.6% 0.242 0.009 0.9% 0.004 0.007 1.2% 1.2% 40.3% 0.231 0.050 0.0% 0.0% 0.006 0.021 2.1% 27.1% 0.134 0.014 0.9% 0.006 0.021 2.1% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0	Central City	37.9%	0.196	0.009	0.5%	0.004	0.011	1.0%	0.004	0.008	16.4%	0.043	0.006
aan         44.6%         0.242         0.009         0.9%         0.004         0.007         1.2%           40.3%         0.231         0.050         0.0%         0         0         4.7%           27.1%         0.134         0.014         0.9%         0.006         0.021         2.1%           NA         41.1%         0.186         0.027         0.0%         0         0         0.0%           NA         43.7%         0.239         0.007         1.0%         0.006         0.07         1.1%           sst         35.1%         0.191         0.012         0.4%         0.005         0.019         0.2%           sst         43.9%         0.246         0.014         0.5%         0.003         0.013         0.6%           sst         39.3%         0.210         0.009         1.8%         0.011         0.01	Nonmetropolitan	39.9%	0.221	0.012	1.5%	0.015	0.018	1.8%	0.013	0.015	15.7%	0.033	0.005
40.3% 0.231 0.050 0.0% 0 0 4.7% 27.1% 0.134 0.014 0.9% 0.006 0.021 2.1% 21.1% 0.146 0.034 0.0% 0 0 0 0.0% 0.00% 0.00% 0.00% 0 0.0% 0.0% 0.0% 0 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.007 1.0% 0.006 0.007 1.1% 0.181 0.191 0.012 0.4% 0.005 0.013 0.6% 0.3% 0.210 0.009 1.8% 0.011 0.011 3.2% 0.0%	Suburban	44.6%	0.242	0.009	%6.0	0.004	0.007	1.2%	0.010	0.012	19.1%	0.041	0.004
40.3% 0.231 0.050 0.0% 0 0 4.7% 27.1% 0.134 0.014 0.9% 0.006 0.021 2.1% 2.1% NA 41.1% 0.186 0.027 0.0% 0 0 0 0.0% 0.0% 0.0% 0 0.0% 0.0%	Race												
27.1% 0.134 0.014 0.9% 0.006 0.021 2.1% American 42.7% 0.146 0.034 0.0% 0 0 0 0.0% NA 41.1% 0.186 0.027 0.0% 0 0 1.7%  a 43.7% 0.239 0.007 1.0% 0.006 0.007 1.1% sst 36.1% 0.191 0.012 0.4% 0.003 0.013 0.6% sast 43.9% 0.246 0.014 0.5% 0.003 0.011 3.2%	Asian	40.3%	0.231	0.050	%0.0	0	0	4.7%	0.084	0.074	20.8%	0.090	0.042
NA 41.1% 0.146 0.034 0.0% 0 0 0.0%  NA 41.1% 0.186 0.027 0.0% 0 0 1.7%  a 43.7% 0.239 0.007 1.0% 0.006 0.007 1.1%  sst 36.1% 0.191 0.012 0.4% 0.005 0.013 0.6%  sast 43.9% 0.246 0.014 0.5% 0.003 0.013 0.6%  solution of the control o	Black	27.1%	0.134	0.014	%6.0	0.006	0.021	2.1%	0.024	0.029	%9.6	0.034	0.014
NA 41.1% 0.186 0.027 0.0% 0 0 1.7%  43.7% 0.239 0.007 1.0% 0.006 0.007 1.1%  sst 36.1% 0.191 0.012 0.4% 0.005 0.019 0.2%  asst 43.9% 0.246 0.014 0.5% 0.003 0.011 3.2%	Native American	42.7%	0.146	0.034	%0.0	0	0	%0.0	0	0	5.3%	0.018	0.022
ast 43.7% 0.239 0.007 1.0% 0.006 0.007 1.1%  1.1% 0.012 0.4% 0.005 0.019 0.2%  1.2% 0.246 0.014 0.5% 0.003 0.013 0.6%  1.39.3% 0.210 0.009 1.8% 0.011 0.011 3.2%	Other/NA	41.1%	0.186	0.027	%0.0	0	0	1.7%	0.004	0.023	15.1%	0.057	0.022
ast 36.1% 0.191 0.012 0.4% 0.005 0.019 0.2% cast 43.9% 0.246 0.014 0.5% 0.013 0.6% 0.013 0.6% 0.010 0.009 1.8% 0.011 0.011 3.2%	White	43.7%	0.239	0.007	1.0%	0.006	0.007	1.1%	0.006	0.007	19.0%	0.039	0.003
sst 36.1% 0.191 0.012 0.4% 0.005 0.019 0.2% cast 43.9% 0.246 0.014 0.5% 0.003 0.013 0.6% 39.3% 0.210 0.009 1.8% 0.011 0.011 3.2%	Region												
ast 43.9% 0.246 0.014 0.5% 0.003 0.013 0.6% 39.3% 0.210 0.009 1.8% 0.011 0.011 3.2%	Midwest	36.1%	0.191	0.012	0.4%	0.005	0.019	0.2%	0	0.004	13.8%	0.033	0.006
39.3% 0.210 0.009 1.8% 0.011 0.011 3.2%	Northeast	43.9%	0.246	0.014	0.5%	0.003	0.013	%9.0	0.009	0.031	20.6%	0.057	0.009
	South	39.3%	0.210	0.009	1.8%	0.011	0.011	3.2%	0.016	0.010	17.2%	0.034	0.004
48.7% 0.263 0.013 0.5% 0.002 0.009 0.2%	West	48.7%	0.263	0.013	0.5%	0.002	0.009	0.2%	0.005	0.022	19.2%	0.039	0.006





			Tab	Table 9-5. Intake of Fruits and Vegetables (g/kg-day) (continued)	f Fruits and	Vegetable	(g/kg-day) (cc	ontinued)				
	C	Other Berries		H.	Peaches			Pears			Peas	
Populatio 1 Group	n Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	2.5%	0.029	0.017	8.6%	0.131	0.019	4.8%	860.0	0.036	12.8%	0.095	0.009
Age												
< 0.1	%6.0	0.092	0.369	14.2%	0.855	0.268	12.3%	1.286	0.598	13.7%	0.294	0.142
01-02	1.3%	0.053	0.248	8.9%	0.286	0.158	2.7%	0.105	0.243	13.6%	0.174	0.083
03-05	2.2%	0.039	0.073	10.0%	0.283	0.121	4.5%	0.144	0.141	12.9%	0.199	0.077
06-11	1.4%	0.014	0.056	13.8%	0.250	0.063	7.8%	0.147	0.057	13.2%	0.120	0.029
12-19	0.8%	0.011	0.029	6.9%	0.084	0.037	3.4%	0.025	0.027	8.4%	0.053	0.021
20-39	2.3%	0.024	0.030	4.2%	0.037	0.019	2.4%	0.026	0.019	10.9%	0.067	0.013
40-69	3.2%	0.031	0.023	8.7%	0.090	0.021	5.2%	0.062	0.022	14.8%	0.084	0.011
70+	5.1%	0.049	0.040	16.1%	0.161	0.033	7.8%	0.087	0.037	16.4%	0.117	0.024
Season												
Fall	2.6%	0.024	0.023	6.4%	0.113	0.043	5.5%	0.159	0.107	13.2%	0.120	0.023
Spring	1.9%	0.019	0.024	8.4%	0.107	0.037	4.3%	0.071	0.041	12.6%	0.077	0.015
Summer	3.4%	0.032	0.027	12.5%	0.166	0.033	4.2%	0.076	990.0	11.2%	0.074	0.019
Winter	2.0%	0.042	0.058	7.4%	0.136	0.041	5.1%	0.088	0.039	14.1%	0.111	0.017
Urbanization												
Central City	2.9%	0.033	0.030	7.3%	0.121	0.035	4.5%	0.120	0.091	11.7%	0.085	0.018
Nonmetropolitan	ın 1.6%	0.016	0.019	%8.6	0.156	0.034	5.4%	0.083	0.033	14.5%	0.113	0.020
Suburban	2.7%	0.033	0.028	8.8%	0.125	0.029	4.6%	0.092	0.050	12.5%	0.094	0.014
Race												
Asian	2.7%	0.014	0.057	6.7%	0.202	0.235	2.7%	0.053	0.151	8.1%	0.047	0.071
Black	%6:0	0.008	0.034	5.6%	0.1111	0.053	2.9%	990.0	0.056	17.0%	0.143	0.032
Native American	m 2.3%	0.072	0.165	%6.6	0.192	0.158	1.2%	0.003	0.053	2.9%	0.007	0.035
Other/NA	%6:0	0.015	0.069	4.3%	0.118	0.145	5.1%	0.063	0.089	%6.9	0.037	0.058
White	2.8%	0.033	0.019	9.3%	0.132	0.021	5.2%	0.106	0.042	12.5%	0.092	0.010
Region												
Midwest	2.3%	0.022	0.020	%9.6	0.155	0.040	%0.9	0.121	0.054	10.9%	0.071	0.014
Northeast	3.2%	0.023	0.024	%0.6	0.132	0.048	5.7%	0.108	0.064	12.5%	0.101	0.026
South	1.7%	0.030	0.037	7.9%	0.113	0.027	3.6%	0.051	0.023	16.2%	0.126	0.017
West	3.3%	0.043	0.045	8.3%	0.131	0.042	4.5%	0.142	0.142	9.5%	0.067	0.018



			Table	9-5. Intake of	Individual	Fruits and	Table 9-5. Intake of Individual Fruits and Vegetables (g/kg-day) (continued)	/kg-day) (c	ontinued)			
		Peppers		Ь	Pumpkins		Sı	Snap Beans			Strawberris	
Population Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	%5'9	0.022	0.005	1.0%	0.026	0.032	21.5%	0.146	0.008	3.4%	0.039	0.019
Age < 01	0.7%	0.003	0.025	5.2%	0.497	0.363	16.7%	0.439	0.154	0.7%	0.018	0.154
01-02	2.4%	0.011	0.031	0.4%	0.030	0.253	24.9%	0.383	0.070	1.6%	0.155	0.598
03-05	3.0%	0.014	0.032	0.7%	0.018	0.148	25.0%	0.274	0.048	3.2%	0.045	0.080
06-11	4.7%	0.019	0.016	0.4%	0.012	0.118	25.6%	0.183	0.024	3.3%	0.052	0.058
12-19	5.3%	0.017	0.014	0.2%	0	0.007	18.3%	0.112	0.018	2.3%	0.016	0.028
20-39	7.9%	0.026	0.009	%9.0	0.007	0.026	19.0%	0.096	0.010	2.7%	0.028	0.020
40-69	8.6%	0.027	0.008	1.2%	0.011	0.018	22.3%	0.124	0.011	4.5%	0.042	0.020
+ 0/	4.7%	0.010	0.008	1.7%	0.034	0.053	25.5%	0.149	0.019	5.8%	0.050	0.040
Season												
Fall	6.0%	0.023	0.009	1.9%	0.043	0.056	21.5%	0.164	0.018	1.3%	0.008	0.017
Spring	7.3%	0.021	0.009	%9.0	0.034	0.105	18.9%	0.109	0.013	7.7%	0.105	0.045
Summer	7.9%	0.023	0.009	0.4%	0.012	0.064	22.3%	0.147	0.016	2.2%	0.030	0.032
Winter	4.7%	0.019	0.010	1.0%	0.015	0.037	23.7%	0.163	0.017	2.5%	0.013	0.015
Urbanization												
Central City	6.5%	0.023	0.009	1.1%	0.035	0.068	20.2%	0.133	0.015	2.8%	0.028	0.020
Nonmetropolitan	6.0%	0.017	0.006	0.5%	0.015	0.068	22.3%	0.141	0.013	3.8%	0.052	0.029
Suburban	98.9	0.023	0.007	1.3%	0.025	0.041	22.0%	0.156	0.013	3.6%	0.040	0.035
Race												
Asian	8.1%	0.102	0.112	0.7%	0.005	0.057	13.4%	0.059	0.050	3.4%	0.395	1.152
Black	3.6%	0.005	0.007	0.3%	0.037	0.238	24.1%	0.188	0.022	1.5%	0.031	0.056
Native American	5.3%	0.015	0.031	%0.0	0	0	21.1%	0.119	0.048	1.8%	0.023	0.120
Other/NA	11.1%	0.037	0.024	%6.0	0.024	0.208	15.1%	0.168	0.073	1.4%	0.007	0.042
White	6.8%	0.022	0.005	1.2%	0.025	0.030	21.5%	0.140	0.009	3.9%	0.037	0.013
Region												
Midwest	4.7%	0.016	0.011	1.2%	0.027	0.050	22.4%	0.146	0.014	4.8%	0.051	0.025
Northeast	%0.6	0.036	0.012	1.4%	0.061	0.106	19.7%	0.131	0.020	3.3%	0.059	0.079
South	2.8%	0.015	0.006	0.5%	0.002	0.026	24.3%	0.177	0.014	2.6%	0.025	0.019
West	7.6%	0.025	0.010	1.3%	0.030	0.060	17.5%	0.107	0.019	3.3%	0.028	0.025



	Table 9-5. Intake of Individual Fruits and Vegetables (g/kg-day) (continued)	f Individual Fru	its and Vegetabl	es (g/kg-day) (conti	nued)	
		Tomatoes			White Potatoes	
Population Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	91.8%	0.876	0.010	87.6%	1.093	0.013
Age						
< 01	64.2%	1.116	0.094	86.65	1.102	0.128
01-02	93.8%	1.838	0.103	84.2%	2.228	0.113
03-05	94.9%	1.700	0.072	88.1%	1.817	0.086
06-11	95.2%	1.160	0.032	%5'06	1.702	0.058
12-19	95.5%	0.852	0.022	90.1%	1.238	0.042
20-39	94.7%	0.791	0.013	88.6%	0.897	0.018
40-69	%9.06	0.673	0.013	88.1%	0.882	0.018
70 +	87.2%	0.689	0.027	88.9%	0.865	0.031
Season						
Fall	92.5%	0.907	0.021	88.9%	1.169	0.027
Spring	%9.06	0.808	0.018	86.3%	1.036	0.024
Summer	92.4%	0.946	0.019	86.5%	1.001	0.029
Winter	91.9%	0.844	0.018	88.7%	1.167	0.024
Urbanization						
Central City	91.5%	0.827	0.017	84.7%	1.017	0.025
Nonmetropolitan	%2.06	0.827	0.018	89.4%	1.211	0.027
Suburban	92.8%	0.931	0.015	88.5%	1.087	0.019
Race						
Asian	%9.06	1.147	0.110	77.2%	0.446	0.062
Black	87.4%	0.713	0.027	83.3%	1.202	0.047
Native American	84.2%	0.890	0.073	85.4%	1.735	0.134
Other/NA	91.4%	1.004	0.049	77.1%	1.036	0.080
White	92.8%	0.892	0.011	88.9%	1.082	0.014
Region						
Midwest	92.2%	0.814	0.019	89.2%	1.246	0.029
Northeast	93.0%	0.988	0.024	89.98	1.090	0.030
South	%2'06	0.831	0.016	88.5%	1.074	0.021
West	92.3%	0.914	0.021	85.1%	0.946	0.026
NOTE: $SE = Sta$ $P = Pere$	Standard error Percentile of the distribution					
Source: Based on EP.	Source: Based on EPA's analyses of the 1989/91 CSFII	91 CSFII				



### Chapter 9 - Intake of Fruits and Vegetables

E         Percent         Mean         SE         Percent         Mean         Percent         Percent         Percent         Percent         Percent         Percent         Percent         <		Dark Gre	Dark Green Vegetables	bles	Deep Yel	Deep Yellow Vegetables	ables	Deep Yellow Vegetables Citrus Fruits	Citrus Fruits	2000		Other Fruits		Othe	Other Vegetables	se
15.5% 0.189 0.107 0.107 0.108 0.107 0.107 0.109 0.389% 1.259 0.589 0.57% 0.149 0.063 0.179	Population Group	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
1.34%   0.18%   0.117   10.14%   0.178   0.178   0.14%   0.15%   0.45%   0.25%   0.25%   0.178   0.1	Total	19.1%	0.180	0.012	20.0%	0.147	0.010	38.0%	1.236	0.039	57.7%	2.141	0.063	83.1%	1.316	0.016
1.54%   0.180   0.177   0.104%   0.178   0.159   0.149%   0.159   0.149%   0.159   0.149%	Age															
12.4%   0.364   0.137   14.4%   0.281   0.109   43.6%   4.237   0.459   0.459   0.459   0.498   73.6%   2.077     14.8%   0.390   0.119   15.3%   0.107   0.043   4.10%   2.856   0.267   70.0%   8.826   0.348   73.6%   2.077     14.8%   0.120   0.041   19.1%   0.185   0.043   4.10%   1.856   0.267   70.1%   8.256   0.348   78.9%   1.534     14.8%   0.120   0.041   19.1%   0.085   0.043   4.10%   1.856   0.049   4.10%   0.093   0.093   0.093   0.094     14.8%   0.137   0.016   14.0%   0.016   0.015   33.4%   0.093   0.049   44.9%   0.057   0.042   8.1%   0.057     24.4%   0.187   0.016   24.3%   0.164   0.017   39.9%   0.844   0.045   0.094   1.255   0.093   8.8.3%   1.574     24.6%   0.187   0.016   24.3%   0.146   0.017   39.9%   0.844   0.045   0.094   1.255   0.095   1.254   0.107   0.094     34.6%   0.180   0.180   0.180   0.024   0.024   0.023   38.4%   1.151   0.074   57.6%   2.244   0.107   81.3%   1.254     41.6%   0.180   0.180   0.023   2.27%   0.144   0.023   38.4%   1.211   0.074   57.6%   2.244   0.107   81.3%   1.245     41.6%   0.180   0.180   0.024   0.197   0.024   0.024   0.023   38.4%   1.251   0.072   56.4%   0.245   0.107   81.3%   1.245     41.6%   0.180   0.180   0.024   0.197   0.024   0.023   0.023   0.024	< 01	7.5%	0.180	0.177	10.1%	0.178	0.157	24.8%	1.929	0.586	61.6%	12.855	1.284	41.7%	1.346	0.200
14.8%   0.390   0.119   16.3%   0.117   0.063   41.0%   2.5%   0.267   70.0%   5.856   0.348   78.9%   1.979   1.979   1.344   1.348   1.348   0.118	01-02	12.4%	0.364	0.137	14.4%	0.281	0.109	43.6%	4.237	0.459	66.4%	7.599	0.498	73.6%	2.077	0.136
13.3%   0.150   0.044   19.1%   0.185   0.043   40.5%   1.805   0.185   0.19	03-05	14.8%	0.390	0.119	16.3%	0.177	0.063	41.0%	2.596	0.267	70.0%	5.826	0.348	78.9%	1.979	0.102
14.3%   0.112   0.030   14.0%   0.080   0.020   37.0%   1.130   0.085   47.3%   1.053   0.070   81.0%   0.980   0.980   0.980   0.08	06-11	13.3%	0.150	0.044	19.1%	0.185	0.043	40.5%	1.805	0.138	70.1%	3.242	0.126	83.2%	1.534	0.062
18.8%   0.137   0.016   17.5%   0.106   0.015   33.4%   0.903   0.049   44.9%   0.972   0.042   84.1%   1.081     24.4%   0.187   0.016   24.8%   0.164   0.017   39.9%   0.864   0.045   60.9%   1.255   0.088   88.3%   1.374     34.6%   0.187   0.018   0.024   29.4%   0.014   0.023   38.4%   1.155   0.069   76.1%   1.827   0.067   87.7%   1.015     19.6%   0.180   0.023   22.7%   0.194   0.023   38.4%   1.25   0.072   56.4%   2.245   0.112   83.1%   1.35     11.6%   0.180   0.024   1.97%   0.014   0.023   38.4%   1.187   0.073   56.0%   2.245   0.112   83.1%   1.35     11.6%   0.180   0.024   1.97%   0.014   0.023   38.4%   1.187   0.073   56.0%   2.245   0.105   83.3%   1.36     11.6%   0.180   0.024   1.97%   0.015   0.024   0.015   0.024   0.015   0.024   0.015   0.024   0.015   0.024   0.015   0.024   0.016   0.024   0.016   0.01	12-19	14.3%	0.112	0.030	14.0%	0.080	0.020	37.0%	1.130	0.085	47.3%	1.053	0.070	81.0%	0.950	0.035
44%         0.187         0.016         24.8%         0.164         0.017         39.9%         0.844         0.045         0.059         1.255         0.039         1.557         0.049         0.1255         0.034         29.4%         0.245         0.024         0.024         0.017         39.9%         0.844         0.045         7.614         0.028         46.8%         1.155         0.069         76.1%         1.827         0.067         87.7%         1.151           1         1.96%         0.18         0.023         2.244         0.125         0.024         0.017         38.4%         1.125         0.093         60.8%         2.354         0.171         82.3%         1.151           1         0.10%         0.18         0.024         0.194         0.023         38.4%         1.125         0.093         60.8%         2.354         0.171         82.3%         1.215           1         1.24%         0.190         0.024         0.193         0.023         38.4%         1.137         0.073         56.0%         0.194         0.107         38.4%         1.371         0.073         56.0%         1.245         0.103         8.34%         1.374         0.073         56.0%         0.0	20-39	18.8%	0.137	0.016	17.5%	0.100	0.015	33.4%	0.903	0.049	44.9%	0.972	0.042	84.1%	1.081	0.022
1	40-69	24.4%	0.187	0.016	24.8%	0.164	0.017	39.9%	0.864	0.045	%6.09	1.255	0.038	88.3%	1.374	0.026
19.6%   0.169   0.023   22.7%   0.156   0.020   38.3%   1.211   0.074   57.6%   2.554   0.171   82.5%   1.276     19.6%   0.187   0.020   19.7%   0.144   0.023   38.4%   1.225   0.072   56.4%   2.024   0.102   83.3%   1.297     1.24   1.24   0.182   0.029   15.6%   0.044   0.017   33.8%   1.136   0.093   60.8%   2.045   0.112   83.1%   1.331     1.24   1.24   0.182   0.024   2.19%   0.192   0.023   41.3%   1.136   0.093   60.8%   2.045   0.110   83.4%   1.361     1.24   1.24   0.183   0.029   15.6%   0.133   0.013   3.2%   1.137   0.073   55.3%   2.090   0.100   81.4%   1.245     1.24   1.24   0.133   0.020   18.4%   0.133   0.013   3.1%   1.135   0.074   57.8%   2.026   0.100   81.4%   1.245     2.59%   0.130   0.019   2.2.0%   0.160   0.016   39.1%   1.360   0.058   59.2%   2.020   0.100   81.4%   1.245     2.59%   0.130   0.024   0.25%   0.124   0.025   0.128   0.045   0.247   0.125   0.058   0.045   0.045   0.045     3.59%   0.126   0.022   10.5%   0.041   0.029   0.045   0.045   0.045   0.045   0.045   0.045   0.045     3.59%   0.126   0.012   0.128   0.014   0.029   0.017   0.045   0.045   0.045   0.045   0.045   0.045   0.045     3.59%   0.126   0.026   2.15%   0.125   0.026   0	+ 04	24.6%	0.255	0.034	29.4%	0.245	0.028	46.8%	1.155	690.0	76.1%	1.827	0.067	87.7%	1.615	0.046
tation (a) (a) (b) (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c	Season															
ter 15.4% 0.187 0.020 19.7% 0.144 0.023 38.4% 1.225 0.072 56.4% 2.024 0.102 83.3% 1.297 1.24 1.24 1.25 0.025 6.08% 2.245 0.112 83.1% 1.33 1.33 1.33 1.34 1.35 1.35 1.35 1.37 1.37 1.37 1.37 1.37 1.37 1.37 1.37	Fall	19.6%	0.169	0.023	22.7%	0.156	0.020	38.3%	1.211	0.074	27.6%	2.354	0.171	82.5%	1.276	0.032
tert         15.4%         0.182         15.6%         0.094         0.017         33.8%         1.136         0.093         60.8%         2.245         0.112         83.1%         1.332           rization         rization         rization         1.20%         0.180         15.4%         0.192         0.023         41.3%         1.137         0.073         56.0%         1.943         0.106         83.4%         1.361           HClity         20.5%         0.197         0.021         1.86         0.133         0.029         1.187         0.072         55.3%         2.090         0.100         81.4%         1.361           bum         16.0%         0.133         0.020         1.84         0.133         0.021         3.2%         1.187         0.074         57.8%         1.954         0.100         81.4%         1.245           bum         1.9.9%         0.133         0.209         1.28         0.219         0.126         0.104         0.021         3.1%         1.356         0.453         5.2%         2.262         0.110         81.4%         1.316           bum         1.59%         0.128         0.128         0.121         0.114         0.029         40.13 <t< td=""><td>Spring</td><td>21.0%</td><td>0.187</td><td>0.020</td><td>19.7%</td><td>0.144</td><td>0.023</td><td>38.4%</td><td>1.225</td><td>0.072</td><td>56.4%</td><td>2.024</td><td>0.102</td><td>83.3%</td><td>1.297</td><td>0.030</td></t<>	Spring	21.0%	0.187	0.020	19.7%	0.144	0.023	38.4%	1.225	0.072	56.4%	2.024	0.102	83.3%	1.297	0.030
Internation 1.0%	Summer	15.4%	0.182	0.029	15.6%	0.094	0.017	33.8%	1.136	0.093	%8.09	2.245	0.112	83.1%	1.332	0.032
ticky         20.5%         0.197         0.021         18.6%         0.133         0.019         39.8%         1.187         0.072         55.3%         2.090         0.100         81.4%         1.245           etropolitan         16.0%         0.133         0.020         18.4%         0.138         0.021         34.2%         1.153         0.074         57.8%         1.954         0.100         83.2%         1.407           ban         19.9%         0.130         0.020         18.4%         0.138         0.021         34.2%         1.153         0.074         57.8%         1.954         0.100         83.2%         1.407           ban         19.9%         0.136         0.019         22.0%         0.160         0.016         39.1%         1.36         0.058         59.2%         0.101         84.1%         1.319           s. American         9.4%         0.229         0.2479         0.453         6.28%         3.26         0.547         85.2%         2.228           NA         15.1%         0.020         10.54         0.041         0.029         40.1%         1.474         0.135         6.28%         3.24%         1.54%         1.174           NA	Winter	20.0%	0.180	0.024	21.9%	0.192	0.023	41.3%	1.371	0.073	26.0%	1.943	0.106	83.4%	1.361	0.031
th City 20.5% 0.197 (0.021 18.6% 0.133 0.019 39.8% 1.187 0.072 55.3% 2.090 0.100 81.4% 1.245 etropolitan 16.0% 0.133 0.020 18.4% 0.138 0.021 34.2% 1.153 0.074 57.8% 1.954 0.100 83.2% 1.407 ban 19.9% 0.190 0.019 22.0% 0.160 0.016 39.1% 1.306 0.058 59.2% 2.262 0.110 84.1% 1.319 and 19.9% 0.125 0.125 0.128 0.128 0.104 0.029 40.1% 1.474 0.135 69.8% 3.360 0.547 85.2% 1.319 1.319 and 15.1% 0.124 0.032 1.25% 0.104 0.029 40.1% 1.474 0.135 69.8% 3.360 0.547 85.2% 1.319 1.319 and 15.1% 0.124 0.032 1.25% 0.104 0.020 40.1% 1.474 0.135 6.29% 2.375 0.431 75.4% 1.176 1.322 and 15.1% 0.125 0.022 1.05% 0.138 0.039 0.15% 0.104 0.029 40.1% 1.479 0.453 0.29% 2.375 0.431 75.4% 1.176 1.322 and 15.1% 0.125 0.022 1.05% 0.154 0.015 0.016 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.186 and 15.1% 0.125 0.025 1.87% 0.156 0.025 1.87% 0.156 0.025 1.87% 0.157 0.108 0.156 0.025 0.025 1.87% 0.158 0.025	Urbanization															
terropolitan 16.0% 0.133 0.020 18.4% 0.138 0.021 34.2% 1.153 0.074 57.8% 1.954 0.100 83.2% 1.407 ban 19.9% 0.190 0.019 22.0% 0.160 0.016 0.016 22.0% 0.160 0.016 22.0% 0.160 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.016 0.018 0.021 0.188 0.021 0.188 0.029 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.187 0.188 0	Central City	20.5%	0.197	0.021	18.6%	0.133	0.019	39.8%	1.187	0.072	55.3%	2.090	0.100	81.4%	1.245	0.027
ban 19.9% 0.190 0.019 22.0% 0.160 0.016 39.1% 1.306 0.058 59.2% 2.262 0.110 84.1% 1.319 30.9% 0.327 0.127 29.5% 0.221 0.118 51.0% 2.479 0.453 69.8% 3.360 0.547 85.2% 2.228  American 9.4% 0.126 0.092 10.5% 0.014 0.029 40.1% 1.474 0.135 46.2% 1.806 0.156 78.1% 1.232  NA 15.1% 0.224 0.087 13.4% 0.106 0.071 40.3% 1.479 0.229 52.0% 2.375 0.431 75.4% 1.077  Bat 12.6% 0.126 0.025 21.6% 0.154 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.368  13.1% 0.156 0.025 21.6% 0.154 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.368  22.6% 0.206 0.206 0.216 0.007 33.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.445  22.6% 0.206 0.201 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.156 0.025 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	Nonmetropolitan	16.0%	0.133	0.020	18.4%	0.138	0.021	34.2%	1.153	0.074	27.8%	1.954	0.100	83.2%	1.407	0.033
30.9% 0.327 0.127 29.5% 0.221 0.118 51.0% 2.479 0.453 69.8% 3.360 0.547 85.2% 2.228  25.9% 0.318 0.039 12.5% 0.104 0.029 40.1% 1.474 0.135 46.2% 1.806 0.156 78.1% 1.232  NA 15.1% 0.224 0.087 13.4% 0.106 0.071 40.3% 1.439 0.229 52.0% 2.375 0.431 75.4% 1.077  NA 15.1% 0.156 0.012 21.6% 0.154 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.326  est 12.6% 0.125 0.026 18.7% 0.128 0.020 35.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.186  22.6% 0.195 0.026 22.1% 0.175 0.026 45.6% 1.430 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.026 25.2% 0.187 0.021 41.8% 1.49 0.092 65.0% 2.414 0.182 83.8% 1.293	Suburban	19.9%	0.190	0.019	22.0%	0.160	0.016	39.1%	1.306	0.058	59.2%	2.262	0.110	84.1%	1.319	0.023
3.9% 0.37 0.127 29.5% 0.221 0.118 51.0% 2.479 0.453 69.8% 3.360 0.547 85.2% 2.228  25.9% 0.318 0.039 12.5% 0.040 0.029 40.1% 1.474 0.135 46.2% 1.806 0.547 85.2% 2.238  NA 15.1% 0.126 0.092 10.5% 0.081 0.060 33.3% 0.945 0.219 50.9% 2.375 0.431 75.4% 1.077  NA 15.1% 0.126 0.092 10.5% 0.081 0.060 33.3% 0.945 0.219 50.9% 2.375 0.431 75.4% 1.077  stat 12.6% 0.126 0.022 2.1.% 0.154 0.015 0.020 35.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.186  22.6% 0.195 0.026 2.2.1% 0.187 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.49 0.092 65.0% 2.414 0.182 83.8% 1.293	Race															
25.9% 0.318 0.039 12.5% 0.104 0.029 40.1% 1.474 0.135 46.2% 1.806 0.156 78.1% 1.232  NA 15.1% 0.224 0.087 13.4% 0.106 0.071 40.3% 1.439 0.229 52.0% 2.375 0.431 75.4% 1.077  IB.1% 0.126 0.022 10.5% 0.154 0.015 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.116  est 12.6% 0.125 0.226 0.221 0.158 0.128 0.128 0.128 0.129 0.077 59.8% 2.137 0.138 81.2% 1.145  20.5% 0.206 0.21 16.8% 0.119 0.118 0.118 0.129 0.007 50.3% 1.927 0.135 0.132 84.5% 1.445  20.5% 0.195 0.22 25.2% 0.187 0.021 41.8% 1.48 0.092 65.0% 2.414 0.182 83.8% 1.293	Asian	30.9%	0.327	0.127	29.5%	0.221	0.118	51.0%	2.479	0.453	%8.69	3.360	0.547	85.2%	2.228	0.205
NA 15.1% 0.126 0.092 10.5% 0.081 0.060 33.3% 0.945 0.219 50.9% 2.375 0.431 75.4% 1.077  NA 15.1% 0.224 0.087 13.4% 0.106 0.071 40.3% 1.439 0.229 52.0% 2.589 0.452 76.3% 1.116  I 8.1% 0.156 0.012 21.6% 0.154 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.136  est 12.6% 0.125 0.026 18.7% 0.128 0.020 45.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.186  20.5% 0.206 0.021 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	Black	25.9%	0.318	0.039	12.5%	0.104	0.029	40.1%	1.474	0.135	46.2%	1.806	0.156	78.1%	1.232	0.044
NA 15.1% 0.224 0.087 13.4% 0.106 0.071 40.3% 1.439 0.229 52.0% 2.589 0.452 76.3% 1.116  n  18.1% 0.156 0.012 21.6% 0.154 0.011 37.4% 1.178 0.041 59.8% 2.154 0.071 84.2% 1.326  est 12.6% 0.125 0.026 18.7% 0.128 0.026 45.6% 1.430 0.077 59.8% 2.137 0.108 81.2% 1.445  20.5% 0.206 0.021 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	Native American	9.4%	0.126	0.092	10.5%	0.081	0.060	33.3%	0.945	0.219	50.9%	2.375	0.431	75.4%	1.077	0.107
n         n         18.1%         0.156         0.015         21.6%         0.154         0.011         37.4%         1.178         0.041         59.8%         2.154         0.071         84.2%         1.326           est         12.6%         0.125         0.026         12.8         0.020         35.5%         1.099         0.077         59.8%         2.137         0.108         11.86           cast         12.6%         0.125         0.026         22.1%         0.175         0.026         45.6%         1.430         0.079         60.5%         2.235         0.132         84.5%         1.445           20.5%         0.206         0.021         16.8%         0.119         0.018         33.5%         1.090         0.067         50.3%         1.927         0.095         83.2%         1.346           22.6%         0.195         0.022         25.2%         0.187         0.021         41.8%         1.449         0.092         65.0%         2.414         0.182         83.8%         1.293	Other/NA	15.1%	0.224	0.087	13.4%	0.106	0.071	40.3%	1.439	0.229	52.0%	2.589	0.452	76.3%	1.116	0.104
est 12.6% 0.125 0.026 18.7% 0.128 0.020 35.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.186  20.5% 0.206 0.021 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	White	18.1%	0.156	0.012	21.6%	0.154	0.011	37.4%	1.178	0.041	86.65	2.154	0.071	84.2%	1.326	0.017
est 12.6% 0.125 0.026 18.7% 0.128 0.020 35.5% 1.099 0.077 59.8% 2.137 0.108 81.2% 1.186  east 21.1% 0.185 0.026 22.1% 0.175 0.026 45.6% 1.430 0.079 60.5% 2.235 0.132 84.5% 1.445  20.5% 0.206 0.021 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346  22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	Region															
20.5% 0.105 0.026 22.1% 0.175 0.026 45.6% 1.430 0.079 60.5% 2.235 0.132 84.5% 1.445 20.5% 0.205 0.021 16.8% 0.119 0.018 33.5% 1.090 0.067 50.3% 1.927 0.095 83.2% 1.346 22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	Midwest	12.6%	0.125	0.026	18.7%	0.128	0.020	35.5%	1.099	0.077	86.65	2.137	0.108	81.2%	1.186	0.029
20.5%         0.206         0.021         16.8%         0.119         0.018         33.5%         1.090         0.067         50.3%         1.927         0.095         83.2%         1.346           22.6%         0.195         0.022         25.2%         0.187         0.021         41.8%         1.449         0.092         65.0%         2.414         0.182         83.8%         1.293	Northeast	21.1%	0.185	0.026	22.1%	0.175	0.026	45.6%	1.430	0.079	%5.09	2.235	0.132	84.5%	1.445	0.040
22.6% 0.195 0.022 25.2% 0.187 0.021 41.8% 1.449 0.092 65.0% 2.414 0.182 83.8% 1.293	South	20.5%	0.206	0.021	16.8%	0.119	0.018	33.5%	1.090	0.067	50.3%	1.927	0.095	83.2%	1.346	0.026
	West	22.6%	0.195	0.022	25.2%	0.187	0.021	41.8%	1.449	0.092	65.0%	2.414	0.182	83.8%	1.293	0.033

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			Tal	Table 9-7. Intake of Exposed, Protected, and Rott Fruits and Vegetables (g/kg-day)	of Expose	d, Protect	ted, and Rott	Fruits and	1 Vegetab	les (g/kg-day)					
	Exp	Exposed Fruits		Protect	Protected Fruits		Expose	Exposed Vegetables	es	Protecte	Protected Vegetables	les	Root A	Root Vegetables	
Population Group	oup Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE	Percent Consuming	Mean	SE
Total	44.1%	1.435	0.062	52.9%	1.692	0.037	84.9%	1.490	0.016	34.0%	0.332	0.012	80.7%	1.245	0.015
Age															
< 0.1	54.7%	9.224	1.247	38.9%	3.097	0.528	42.7%	1.208	0.170	30.9%	1.144	0.192	52.4%	1.857	0.204
01-02	55.3%	5.682	0.486	26.7%	5.518	0.455	78.0%	2.268	0.145	41.6%	0.794	0.104	76.2%	2.398	0.129
03-05	%6.9%	4.324	0.344	57.0%	3.443	0.235	83.6%	2.245	0.119	39.8%	0.703	0.081	%6. <i>LL</i>	1.914	0.096
06-11	58.8%	2.316	0.120	56.2%	2.339	0.125	84.7%	1.606	0.059	44.3%	0.500	0.035	84.4%	1.850	0.065
12-19	36.4%	0.682	0.065	47.7%	1.401	0.081	83.6%	1.181	0.040	30.1%	0.229	0.025	81.4%	1.290	0.045
20-39	32.7%	0.596	0.038	45.4%	1.188	0.047	86.3%	1.300	0.025	31.6%	0.233	0.015	81.6%	0.988	0.020
40-69	44.3%	0.716	0.031	57.3%	1.284	0.043	%6.68	1.568	0.026	32.4%	0.239	0.014	82.8%	1.059	0.021
+ 02	57.7%	1.032	0.058	67.5%	1.780	0.072	86.4%	1.603	0.044	34.6%	0.303	0.028	%9.08	1.109	0.040
Season															
Fall	45.5%	1.753	0.179	50.2%	1.539	0.071	82.8%	1.383	0.033	34.1%	0.336	0.025	%9.08	1.324	0.032
Spring	42.6%	1.184	0.078	53.9%	1.750	0.072	85.0%	1.475	0.031	34.8%	0.320	0.024	80.5%	1.204	0.029
Summer	45.3%	1.440	0.113	54.1%	1.754	0.082	87.1%	1.634	0.033	32.5%	0.334	0.024	80.3%	1.102	0.031
Winter	43.0%	1.362	0.097	53.7%	1.727	0.071	84.9%	1.468	0.033	34.4%	0.337	0.022	81.5%	1.348	0.029
Urbanization															
Central City	42.4%	1.322	0.088	53.3%	1.632	690.0	83.6%	1.413	0.029	31.7%	0.303	0.022	%9'.//	1.167	0.029
Nonmetropolitan	an 44.0%	1.335	0.097	49.4%	1.550	690.0	85.8%	1.550	0.031	37.9%	0.396	0.024	82.3%	1.330	0.030
Suburban	45.3%	1.553	0.112	54.7%	1.797	0.056	85.2%	1.511	0.025	33.1%	0.320	0.018	81.9%	1.254	0.023
Race															
Asian	52.3%	2.118	0.541	%8.69	3.279	0.429	83.2%	2.133	0.195	16.1%	0.166	0.081	25.0%	0.743	0.146
Black	34.6%	1.132	0.149	49.6%	1.861	0.126	81.8%	1.472	0.051	37.3%	0.411	0.038	73.8%	1.309	0.052
Native American	an 35.7%	0.939	0.316	46.8%	2.019	0.330	75.4%	1.501	0.141	32.7%	0.380	0.095	78.9%	1.791	0.137
Other/NA	34.0%	1.614	0.408	51.7%	2.014	0.263	85.4%	1.682	0.092	22.9%	0.221	0.074	65.4%	1.239	0.110
White	46.1%	1.468	0.070	53.4%	1.629	0.039	85.6%	1.476	0.017	34.1%	0.326	0.013	82.9%	1.237	0.016
Region															
Midwest	47.3%	1.422	0.091	49.5%	1.501	0.072	80.9%	1.215	0.029	35.8%	0.344	0.022	82.2%	1.361	0.033
Northeast	47.3%	1.518	0.118	59.4%	1.887	0.080	84.7%	1.561	0.041	32.4%	0.369	0.036	80.2%	1.304	0.037
South	36.9%	1.271	0.092	47.6%	1.560	0.064	86.7%	1.609	0.027	36.8%	0.358	0.019	81.2%	1.183	0.024
West	49.4%	1.643	0.198	60.1%	1.947	0.084	%9.98	1.546	0.035	28.4%	0.236	0.022	78.5%	1.150	0.032
NOTE: SI	SE = Standard error P = Percentile of the distribution	; distributio	u e												
Source: Based	Source: Based on EPA's analyses of the 1989/91 CSFII	of the 198	9/91 CSFI												



### Chapter 9 - Intake of Fruits and Vegetables

Food category	% Indiv. using	Quantity consumed per eating	ned per eating		Quantity co	) nsumed per ea	Consumers-only Quantity consumed per eating occasion at specified percentiles (g)*	y ıt specified per	centiles (g)ª	
	food in 3 days	occasion (g)	n (g)	5	25	20	75	06	95	66
		Average	Standard Deviation							
Raw vegetables										
White potatoes	74.4	125	06	53	63	105	170	235	280	426
Cabbage and coleslaw	9.7	89	45	15	40	09	06	120	120	240
Carrots	ΣC	43	40	4	13	31	55	100	122	183
Cucumbers	5.6	80	2/9	∞ :	24	70	110	158	220	316
Lettuce and tossed salad	50.7	65	29	10	20	55	93	140	186	270
Mature omons Tomatoes	8.5 27.8	31 81	55	30	17 45	18 62	30 113	37 123	182	180 246
Cooked sugastables									100	250
June vegetables	6 9	119	00	06	97	0	т и	105	200	330
DIOCCOII	2.0	112	0 6	00	0 1	2 3	133	103	200	430
Cabbage	7.40	971	200	07	C 9	7.5	000	150	133	0/7
Carrois	8.8	0.5	96	61	40	c 6	36	150	1/0	330
Corn, whole kernel	23.9	93	36	21	63	83	123	170	219	350
Juna beans	0.2	110	60	17	0 0	8 8	103	103	107	970
Mixeu vegetables	4.0	101	60	07	91	94	102	100	330	230
Cowpeas, Held peas, Diack-	6.3	151	00	77	90	000	173	130	170	200
yeu peas	10.3	D6 1	) C	07	£ 6	93	10.5	170 90E	203	360
Green peas	4.3	121	0 7	7.4	8,7	103	185	203	140	087
Spinach	6.12	00	94.	10	70,	0,1	153	140	200	450
String beans	2.8	145	98	77	105	108	215	215	238	450
Summer squasn	4.T	130	78/	85 5	80	100	183	273	303	480
Sweet potatoes Tomato inice	9.6 8.6	91 45	122 45	91	77 I 16	78 T 30	243 65	243 90	130	777
Cucumber pickles	1	2	2	-	2	3	3	8		
Fruits	!	!								
Grapefruit	4.7	159	28	106	134	134	165	892	568	330
Grapefruit juice	3.6	202	66	95	125	186	247	250	375	200
Oranges	6	146	22	73	145	145	145	180	228	360
Orange juice	35.5	190	84	92	125	187	249	249	311	498
Apples	18.2	141	46	69	138	138	138	212	212	276
Applesauce, cooked apples	8.6	134	98	88	64	128	130	255	155	488
Apple juice	3.8	191	101	63	124	186	248	248	372	496
Cantaloupe	3.3	171	91	61	136	136	272	272	272	529
Raw peaches	4.5	160	75	9/	152	152	152	304	304	456
Raw pears	3.1	163	69	85	164	164	164	164	328	328
Raw strawberries	2.1	100	528	37	75	75	149	149	180	298

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Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Alfalfa Sprouts	0.0001393	0.0000319
Apples-Dried	0.0002064	0.0000566
Apples-Fresh	0.4567290	0.0142203
Apples-Juice	0.2216490	0.0142069
Apricots-Dried	0.0004040	0.0001457
Apricots-Fresh	0.0336893	0.0022029
Artichokes-Globe	0.0032120	0.0007696
Artichokes-Jerusalem	0.0000010	*
Asparagus	0.0131098	0.0010290
Avocados	0.0125370	0.0020182
Bamboo Shoots	0.0001464	0.0000505
Bananas-Dried	0.0004489	0.0001232
Bananas-Fresh	0.2240382	0.0088206
Bananas-Unspecified	0.0032970	0.0004938
Beans-Dry-Blackeye Peas (cowpeas)	0.0024735	0.0005469
Beans-Dry-Broad Beans (Mature Seed)	0.0000000	*
Beans-Dry-Garbanzo (Chick Pea)	0.0005258	0.0001590
Beans-Dry-Great Northern	0.0000010	*
Beans-Dry-Hyacinth (Mature Seeds)	0.0000000	*
Beans-Dry-Kidney	0.0136313	0.0045628
Beans-Dry-Lima	0.0079892	0.0016493
Beans-Dry-Navy (Pea)	0.0374073	0.0023595
Beans-Dry-Other	0.0398251	0.0023773
Beans-Dry-Pigeon Beans	0.0000357	0.0000357
Beans-Dry-Pinto	0.0363498	0.0048479
Beans-Succulent-Broad Beans (Immature Seed)	0.0000000	*
Beans-Succulent-Green	0.2000500	0.0062554
Beans-Succulent-Hyacinth (Young Pods)	0.0000000	*
Beans-Succulent-Lima	0.0256648	0.0021327
Beans-Succulent-Other	0.0263838	0.0042782
Beans-Succulent-Yellow, Wax	0.0054634	0.0009518
Beans-Unspecified	0.0052345	0.0012082



Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Beets-Roots	0.0216142	0.0014187
Beets-Tops (Greens)	0.0008287	0.0003755
Bitter Melon	0.0000232	0.0000233
Blackberries	0.0064268	0.0007316
Blueberries	0.0090474	0.0008951
Boysenberries	0.0007313	0.0006284
Bread Nuts	0.000010	*
Bread Fruit	0.0000737	0.0000590
Broccoli	0.0491295	0.0032966
Brussel Sprouts	0.0068480	0.0009061
Cabbage-Chinese/Celery, Inc. Bok Choy	0.0045632	0.0020966
Cabbage-Green and Red	0.0936402	0.0039046
Cactus Pads	0.000010	*
Cantaloupes	0.0444220	0.0029515
Carambola	0.000010	*
Carob	0.0000913	0.0000474
Carrots	0.1734794	0.0041640
Casabas	0.0007703	0.0003057
Cassava (Yuca Blanca)	0.0002095	0.00001574
Cauliflower	0.0158368	0.0011522
Celery	0.0609611	0.0014495
Cherimoya	0.000010	*
Cherries-Dried	0.000010	*
Cherries-Fresh	0.0321754	0.0024966
Cherries-Juice	0.0034080	0.0009078
Chicory (French or Belgian Endive)	0.0006707	0.0001465
Chili Peppers	0.0000000	*
Chives	0.0000193	0.0000070
Citrus Citron	0.0001573	0.0000324
Coconut-Copra	0.0012860	0.0000927
Coconut-Fresh	0.0001927	0.0000684
Coconut-Water	0.0000005	0.000005



Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Collards	0.0188966	0.0032628
Corn, Pop	0.0067714	0.0003348
Corn, Sweet	0.2367071	0.0062226
Crabapples	0.0003740	*
Cranberries	0.0150137	0.0006153
Cranberries-Juice	0.0170794	0.0022223
Crenshaws	0.0000010	*
Cress, Upland	0.0000010	*
Cress, Garden, Field	0.0000000	*
Cucumbers	0.0720821	0.0034389
Currants	0.0005462	0.0000892
Dandelion	0.0005039	0.0002225
Dates	0.0006662	0.0001498
Dewberries	0.0023430	*
Eggplant	0.0061858	0.0007645
Elderberries	0.0001364	0.0001365
Endive, Curley and Escarole	0.0011851	0.0001929
Fennel	0.0000000	*
Figs	0.0027847	0.0005254
Garlic	0.0007621	0.0000230
Genip (Spanish Lime)	0.0000010	*
Ginkgo Nuts	0.0000010	*
Gooseberries	0.0003953	0.0001341
Grapefruit-Juice	0.0773585	0.0053846
Grapefruit-Pulp	0.0684644	0.0032321
Grapes-Fresh	0.0437931	0.0023071
Grapes-Juice	0.0900960	0.0058627
Grapes-Leaves	0.0000119	0.0000887
Grapes-Raisins	0.0169730	0.0009221
Groundcherries (Poha or Cape- Gooseberries)	0.0000000	*
Guava	0.0000945	0.0000558
Honeydew Melons	0.0183628	0.0042879



Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Huckleberries (Gaylussacia)	0.000010	*
Juneberry	0.0000010	*
Kale	0.0015036	0.0006070
Kiwi	0.0000191	0.0000191
Kohlrabi	0.0002357	0.0001028
Kumquats	0.0000798	0.0000574
Lambsquarter	0.0000481	0.0000481
Leafy Oriental Vegetables	0.000010	*
Leeks	0.0000388	0.0000221
Lemons-Juice	0.0189564	0.0009004
Lemons-Peel	0.0002570	0.0001082
Lemons-Pulp	0.0002149	0.0000378
Lemons-Unspecified	0.0020695	0.0003048
Lentiles-Split	0.0000079	0.000064
Lentiles-Whole	0.0012022	0.0002351
Lettuce-Head Varieties	0.2122803	0.0059226
Lettuce-Leafy Varieties	0.0044328	0.0003840
Lettuce-Unspecified	0.0092008	0.0004328
Limes-Juice	0.0032895	0.0005473
Limes-Pulp	0.0000941	0.0000344
Limes-Unspecified	0.0000010	*
Loganberries	0.0002040	*
Logan Fruit	0.0000010	*
Loquats	0.000000	*
Lychee-Dried	0.000010	*
Lychees (Litchi)	0.000010	*
Maney (Mammee Apple)	0.000010	*
Mangoes	0.0005539	0.0002121
Mulberries	0.000010	*
Mung Beans (Sprouts)	0.0066521	0.0006462
Mushrooms	0.0213881	0.0009651
Mustard Greens	0.0145284	0.0024053



Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Nectarines	0.0129663	0.0013460
Okra	0.0146352	0.0017782
Olives	0.0031757	0.0002457
Onions-Dehydrated or Dried	0.0001192	0.0000456
Onions-Dry-Bulb (Cipollini)	0.1060612	0.0021564
Onions-Green	0.0019556	0.0001848
Oranges-Juice	1.0947265	0.0283937
Oranges-Peel	0.0001358	0.0000085
Oranges-Pulp	0.1503524	0.0092049
Papayas-Dried	0.0009598	0.0000520
Papayas-Fresh	0.0013389	0.0005055
Papayas-Juice	0.0030536	0.0012795
Parsley Roots	0.000010	*
Parsley	0.0036679	0.0001459
Parsnips	0.0006974	0.0001746
Passion Fruit (Granadilla)	0.000010	*
Pawpaws	0.000010	*
Peaches-Dried	0.0000496	0.0000152
Peaches-Fresh	0.2153916	0.0078691
Pears-Dried	0.0000475	0.0000279
Pears-Fresh	0.1224735	0.0050442
Peas (Garden)-Green Immature	0.1719997	0.0067868
Peas (Garden)-Mature Seeds, Dry	0.0017502	0.0002004
Peppers, Sweet, Garden	0.0215525	0.0010091
Peppers-Other	0.0043594	0.0004748
Persimmons	0.0004008	0.0002236
Persian Melons	0.000010	*
Pimentos	0.0019485	0.0001482
Pineapple-Dried	0.0000248	0.0000195
Pineapple-Fresh, Pulp	0.0308283	0.0017136
Pineapple-Fresh, Juice	0.0371824	0.0026438
Pitanga (Surinam Cherry)	0.000010	*



Raw Agricultural Commodity <sup>a</sup>	Average Consumption (Grams/Kg Body Weight-Day)	Standard Error
Plantains	0.0016370	0.0007074
Plums, Prune-Juice	0.0137548	0.0017904
Plums (Damsons)-Fresh	0.0248626	0.0020953
Plums-Prunes (Dried)	0.0058071	0.0005890
Poke Greens	0.0002957	0.0001475
Pomegranates	0.0000820	0.0000478
Potatoes (White)-Whole	0.3400582	0.0102200
Potatoes (White)-Unspecified	0.0000822	0.0000093
Potatoes (White)-Peeled	0.7842573	0.0184579
Potatoes (White)-Dry	0.0012994	0.0001896
Potatoes (White)-Peel Only	0.0000217	0.0000133
Pumpkin	0.0044182	0.0004354
Quinces	0.0001870	*
Radishes-Roots	0.0015558	0.0001505
Radishes-Tops	0.000000	*
Raspberries	0.0028661	0.0005845
Rhubarb	0.0037685	0.0006588
Rutabagas-Roots	0.0027949	0.0009720
Rutabagas-Tops	0.0000000	*
Salsify (Oyster Plant)	0.0000028	0.0000028
Shallots	0.000000	*
Soursop (Annona Muricata)	0.000010	*
Soybeans-Sprouted Seeds	0.000000	*
Spinach	0.0435310	0.0030656
Squash-Summer	0.0316479	0.0022956
Squash-Winter	0.0324417	0.0026580
Strawberries	0.0347089	0.0020514
Sugar Apples (Sweetsop)	0.000010	*
Sweetpotatoes (including Yams)	0.0388326	0.0035926
Swiss Chard	0.0016915	0.0004642
Tangelos	0.0025555	0.0006668
Tangerine-Juice	0.0000839	0.0000567



	Average Consumption	
Raw Agricultural Commodity <sup>a</sup>	(Grams/Kg Body Weight-Day)	Standard Error
Tangerines	0.0088441	0.0010948
Tapioca	0.0012199	0.0000951
Taro-Greens	0.0000010	*
Taro-Root	0.0000010	*
Tomatoes-Catsup	0.0420320	0.0015878
Tomatoes-Juice	0.0551351	0.0029515
Tomatoes-Paste	0.0394767	0.0012512
Tomatoes-Puree	0.17012311	0.0054679
Tomatoes-Whole	0.4920164	0.0080927
Towelgourd	0.0000010	*
Turnips-Roots	0.0082392	0.0014045
Turnips-Tops	0.0147111	0.0025845
Water Chestnuts	0.0004060	0.0000682
Watercress	0.0003553	0.0001564
Watermelon	0.0765054	0.0068930
Yambean, Tuber	0.0000422	0.0000402
Yautia, Tannier	0.0000856	0.0000571
Youngberries	0.0003570	*

<sup>\*</sup> Not reported
a Consumed in any raw or prepared form
Source: DRES data base.



Age (yr)	Per Capita Intake (g/day)	Percent of Population Using Fruit in a Day	Intake (g/day) for Users Only <sup>b</sup>
Males and Females	169	86.8	196
1 and under	146	62.9	231
1-2	134	56.1	239
3-5	152	60.1	253
6-8			
<u>Males</u>	133	50.5	263
9-11	120	51.2	236
12-14	147	47.0	313
15-18	107	39.4	271
19-22	141	46.4	305
23-34	115	44.0	262
35-50	171	62.4	275
51-64	174	62.2	281
65-74	186	62.6	197
75 and over			
<u>Females</u>	148	59.7	247
9-11	120	48.7	247
12-14	126	49.9	251
15-18	133	48.0	278
19-22	122	47.7	255
23-34	133	52.8	252
35-50	171	66.7	256
51-64	179	69.3	259
65-74	189	64.7	292
75 and over			
Males and Females	142	54.2	263
All ages			

 $<sup>^{\</sup>mathrm{a}}$  Based on USDA Nationwide Food Consumption Survey (1977-1978) data for one day.

b Intake for users only was calculated by dividing the per capita intake rate by the fraction of the population using fruit in a day. Source: USDA, 1980.

	Table 9-11. Mean Total Fruit Intake (as cons	sumed) in a Day by Sex and Age (19	987-1988) <sup>a</sup>
Age (yr)	Per Capita Intake (g/day)	Percent of Population Using Fruit in 1 Day	Intake (g/day) for Users Only <sup>b</sup>
Males and Females 5 and under	157	59.2	265
Males 6-11 12-19 20 and over	182 158 133	63.8 49.4 46.5	285 320 286
<u>Females</u> 6-11 12-19 20 and over	154 131 140	58.3 47.1 52.7	264 278 266
Males and Females All Ages	142	51.4	276

<sup>&</sup>lt;sup>a</sup> Based on USDA Nationwide Food Consumption Survey (1987-1988) data for one day.

Intake for users only was calculated by dividing the per capita intake rate by the fraction of the population using fruits in a day. Source: USDA, 1992b.

Age (yr)	Per Capita Intake (g/day)	Percent of Population Using Vegetables in a Day	Intake (g/day) for Users Only <sup>b</sup>
Males and Females			
1 and under	76	62.7	121
1-2	91	78.0	116
3-5	100	79.3	126
6-8	136	84.3	161
Males			
9-11	138	83.5	165
12-14	184	84.5	217
15-18	216	85.9	251
19-22	226	84.7	267
23-34	248	88.5	280
35-50	261	86.8	300
51-64	285	90.3	316
65-74	265	88.5	300
75 and over	264	93.6	281
<u>Females</u>			
9-11	139	83.7	166
12-14	154	84.6	183
15-18	178	83.8	212
19-22	184	81.1	227
23-34	187	84.7	221
35-50	187	84.6	221
51-64	229	89.8	255
65-74	221	87.2	253
75 & over	198	88.1	226
Males and Females			
All Ages	201	85.6	235

Based on USDA Nationwide Food Consumption Survey (1977-1978) data for one day.

Intake for users only was calculated by dividing the per capita intake rate by the fraction of the population using vegetables in a day. Source: USDA, 1980.

	Table 9-13. Mean Total Vegetable I	ntake (as consumed) in a Day by Sex and Age (19	87-1988) <sup>a</sup>
Age (yr)	Per Capita Intake (g/day)	Percent of Population Using Vegetables in 1 Day	Intake (g/day) for Users Only <sup>b</sup>
Males and Females 5 and under	81	74.0	109
<u>Males</u>			
6-11	129	86.8	149
12-19	173	85.2	203
20 and over	232	85.0	273
<u>Females</u>			
6-11	129	80.6	160
12-19	129	75.8	170
20 and over	183	82.9	221
Males and Females			
All Ages	182	82.6	220

Based on USDA Nationwide Food Consumption Survey (1987-1988) data for one day.

Intake for users only was calculated by dividing the per capita intake rate by the fraction of the population using vegetables in a day. Source: USDA, 1992b.



#### Chapter 9 - Intake of Fruits and Vegetables

	Table 9-14. Mean and Standard Error for the Per Capita Daily Intake of Food Class and Subclass by Region (g/day as consumed)					
	US population	Northeast	North Central	South	West	
Total Produce	$282.6 \pm 3.5$	$270.6 \pm 6.9$	$282.4 \pm 6.7$	$280.7 \pm 5.6$	$303.1 \pm 8.2$	
Leafy <sup>a</sup>	$39.2 \pm 0.8$	$38.1 \pm 1.5$	$37.1 \pm 1.5$	$38.4 \pm 1.2$	$45.3\pm1.8$	
Exposed <sup>b</sup>	$86.0\pm1.5$	$88.5 \pm 3.0$	$87.8 \pm 2.9$	$76.9 \pm 2.4$	$95.5 \pm 3.6$	
Protected <sup>c</sup>	$150.4 \pm 2.3$	$137.2 \pm 4.5$	$150.1 \pm 4.3$	$160.1 \pm 3.6$	$152.5 \pm 5.3$	
Other	$7.0 \pm 0.3$	$6.9 \pm 0.6$	$7.3 \pm 0.5$	$5.4 \pm 0.4$	$9.8 \pm 0.7$	
Total Grain	$200.0 \pm 3.0$	$203.5 \pm 5.8$	$192.8 \pm 5.6$	$202.2 \pm 4.7$	$202.6 \pm 6.9$	
Breads	$147.3 \pm 1.4$	$153.1 \pm 2.8$	$150.9 \pm 2.7$	$143.9\pm2.3$	$139.5 \pm 3.3$	
Cereals	$29.9 \pm 1.3$	$24.6 \pm 2.5$	$28.7 \pm 2.4$	$34.6 \pm 2.0$	$30.9 \pm 3.0$	
Other	$22.9 \pm 1.7$	$25.9 \pm 3.3$	$13.3 \pm 3.2$	$23.7 \pm 2.7$	$32.1 \pm 4.0$	

Produce belonging to this category include: cabbage, cauliflower, broccoli, celery, lettuce, and spinach.

NOTE: Northeast = Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, and Pennsylvania. North Central = Ohio, Illinois, Indiana, Wisconsin, Michigan, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

South = Maryland, Delaware, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Texas, and Oklahoma.

West = Montana, Idaho, Wyoming, Utah, Colorado, New Mexico, Arizona, Nevada, Washington, Oregon, and California.

Source: U.S. EPA, 1984b.

Produce belonging to this category include: apples, pears, berries, cucumber, squash, grapes, peaches, apricots, plums, prunes, string beans, pea pods, and tomatoes.

Produce belonging to this category include: carrots, beets, turnips, parsnips, citrus fruits, sweet corn, legumes (peas, beans, etc.), melons, onion, and potatoes.



Age (years)	Leafy produce	Exposed produce <sup>b</sup>	${f Protected}$ produce <sup>c</sup>	Other produce	Breads	Cereal	Other Grains
All Ages	$39.2\pm0.8$	$86.0 \pm 1.5$	$150.4 \pm 2.3$	$7.0 \pm 0.3$	$147.3 \pm 1.4$	$29.9 \pm 1.3$	$22.9 \pm 1.7$
< 1	$3.2 \pm 4.9$	$75.5 \pm 9.8$	$50.8 \pm 14.7$	$25.5 \pm 1.8$	$16.2\pm9.2$	$37.9 \pm 8.2$	$1.8 \pm 10.9$
1-4	$9.1 \pm\ 2.4$	$55.6 \pm 4.8$	$94.5 \pm 7.2$	$5.1 \pm 0.9$	$104.6 \pm 4.5$	$38.4 \pm 4.0$	$14.8 \pm 5.4$
5-9	$20.1 \pm 2.0$	$69.2 \pm 4.8$	$128.9 \pm 6.1$	$4.3 \pm 0.8$	$154.3 \pm 3.8$	$39.5 \pm 3.4$	$22.7\pm4.5$
10-14	$26.1 \pm 1.9$	$76.8 \pm 3.8$	$151.7 \pm 5.7$	$8.1 \pm 0.7$	$186.2\pm3.6$	$36.4 \pm\ 3.2$	$25.6\pm4.2$
15-19	$31.4 \pm 2.0$	$71.9 \pm 4.0$	$156.6 \pm 6.0$	$6.2 \pm 0.7$	$188.5 \pm 3.7$	$28.8 \pm 3.3$	$27.8 \pm 4.4$
20-24	$35.3 \pm 2.6$	$65.6 \pm 5.2$	$144.5 \pm 7.8$	$5.0 \pm 1.0$	$166.5 \pm 4.9$	$20.2 \pm 4.3$	$25.0\pm5.8$
25-29	$41.4 \pm 2.7$	$73.4 \pm 5.3$	$149.8 \pm 8.0$	$7.0 \pm 1.0$	$170.0 \pm 5.0$	$18.2 \pm 4.4$	$26.6 \pm 5.9$
30-39	$44.4 \pm 2.1$	$77.1 \pm 4.2$	$150.5 \pm 6.3$	$6.1 \pm 0.8$	$156.8 \pm 3.9$	$24.7 \pm 2.7$	$23.3 \pm 3.6$
40-59	$51.3 \pm 1.6$	$94.7 \pm 3.3$	$162.9 \pm 4.9$	$6.9 \pm 0.6$	$144.4 \pm 3.1$	$24.7 \pm 2.7$	$23.3 \pm 3.6$
> 60	$45.4 \pm 1.8$	$114.2 \pm 3.6$	$163.9~\pm~5.5$	$7.6 \pm 0.7$	$122.1 \pm 3.4$	$42.5\pm3.0$	$19.3 \pm 4.0$



#### Chapter 9 - Intake of Fruits and Vegetables

Table 9-16. Consumption of Foods (g dry weight/day) for Different Age Groups and Estimated Lifetime Average Daily Food Intakes for a US Citizen (averaged across sex) Calculated from the FDA Diet Data

_	Age (in years)						
_	(0-1)	(1-5)	(6-13)	(14-19)	(20-44)	(45-70)	Estimated <sup>a</sup> lifetime
Potatoes	5.67	10.03	14.72	19.40	17.28	14.79	15.60
Leafy Veg.	0.84	0.49	0.85	1.22	2.16	2.65	1.97
Legume Veg.	3.81	4.56	6.51	8.45	9.81	9.50	8.75
Root Veg.	3.04	0.67	1.20	1.73	1.77	1.64	1.60
Garden fruits	0.66	1.67	2.57	3.47	4.75	4.86	4.15
Peanuts	0.34	2.21	2.56	2.91	2.43	1.91	2.25
Mushrooms	0.00	0.01	0.03	0.04	0.14	0.06	0.08
Veg. Oils	27.62	17.69	27.54	37.04	37.20	27.84	31.24

<sup>&</sup>lt;sup>a</sup> The estimated lifetime dietary intakes were estimated by:

Estimated lifetime = IR(0-1) + 5yrs \* IR (1-5) + 8 yrs \* IR (6-13) + 6 yrs \* IR (14-19) + 25 yrs \* IR (20-44) + 25 yrs \* IR (45-70)

where IR = the intake rate for a specific age group.

Source: U.S. EPA, 1989.

Age (yrs)	Sample Size	Fruit and Fruit Products	Vegetables Not Including Potatoes	Potatoes	Nuts and Legumes
Males and Females					
1-4	1031	258	56	75	6
5-11	1995	312	83	110	13
<u>Males</u>					
12-19	1070	237	94	185	20
20-39	999	244	155	189	15
40-64	1222	194	134	131	15
65+	881	165	118	124	8
<u>Females</u>					
12-19	1162	237	97	115	15
20-39	1347	204	134	99	8
40-64	1500	239	136	79	10
65+	818	208	103	80	5
Pregnant Females					
	769	301	156	114	15

<sup>&</sup>lt;sup>a</sup> Report does not specify whether means were calculated per capita or for consumers only. The reported values are consistent with the as consumed intake rates for consumers only reported by USDA (1980).

Source: Canadian Department of National Health and Welfare, n.d.



Tabl	e 9-18. Per Capita consumption	n of Fresh Fruits and Vegetables in 1991	a	
Fresh Fruit	cs	Fresh Vegetables		
Food Item	Per Capita Consumption (g/day) <sup>b</sup>	Food Item	Per Capita Consumption (g/day) <sup>b</sup>	
Citrus		Artichokes	0.62	
Oranges (includes Temple oranges)	10.2	Asparagus	0.75	
Tangerines and Tangelos	1.6	Snap Beans	1.4	
Lemons	3.1	Broccoli	3.5	
Limes	0.9	Brussel Sprouts	0.4	
Grapefruit	7.1	Cabbage	9.5	
Total Fresh Citrus	22.9	Carrots	9.0	
		Cauliflower	2.2	
<u>Noncitrus</u>	21.8	Celery	7.8	
Apples	0.1	Sweet Corn	6.6	
Apricots	1.7	Cucumber	5.2	
Avocados	31.2	Eggplant	0.5	
Bananas	0.5	Escarole/Endive	0.3	
Cherries	0.4	Garlic	1.6	
Cranberries	8.2	Head Lettuce	30.2	
Grapes	0.5	Onions	18.4	
Kiwi Fruit	1.0	Bell Peppers	5.8	
Mangoes	7.6	Radishes	0.6	
Peaches & Nectarines	3.7	Spinach	0.9	
Pears	2.2	Tomatoes	16.3	
Pineapple	0.3	Total Fresh Vegetables	126.1	
Papayas	1.7			
Plums and Prunes	4.1			
Strawberries	85.0			
Total Fresh Noncitrus	107.7			
Total Fresh Fruits				

 <sup>&</sup>lt;sup>a</sup> Based on retail-weight equivalent. Includes imports; excludes exports and foods grown in home gardens. Data for 1991 used.
 <sup>b</sup> Original data were presented in lbs/yr; data were converted to g/day by multiplying by a factor of 454 g/lb and dividing by 365 days/yr.
 Source: USDA, 1993b.



Table 9-19.	Mean Moisture Content of Selected Fruits, Vegetables, and Grains Expressed As Percentages of Edible Portions					
Food	Moisture Content (Percent)		Comments			
	Raw	Cooked				
ruit						
apples - dried	31.76	84.13*	sulfured; *without added sugar			
apples -	83.93*	84.46**	*with skin; **without skin			
apples - juice		87.93	canned or bottled			
applesauce		88.35*	*unsweetened			
pricots	86.35	86.62*	*canned juice pack with skin			
pricots - dried	31.09	85.56*	sulfured; *without added sugar			
ananas	74.26	00.00	Surarea, William added Sugar			
lackberries	85.64					
lueberries	84.61	86.59*	*frozen unsweetened			
oysenberries	85.90	00.00	frozen unsweetened			
antaloupes - unspecified	89.78		mozen unsweeteneu			
Casabas	91.00					
Cherries - sweet	80.76	84.95*	*canned, juice pack			
Crabapples	78.94	01.33	camica, juice pack			
Cranberries	86.54					
Cranberries - juice cocktail	85.00		bottled			
Currants (red and white)	83.95		Dottueu			
Ilderberries	79.80					
Frapefruit	90.89					
		90.10*	*canned unsweetened			
Grapefruit - juice	90.00	90.10				
Grapefruit - unspecified	90.89		pink, red, white			
Grapes - fresh	81.30		American type (slip skin)			
Grapes - juice	84.12		canned or bottled seedless			
Grapes - raisins	15.42		seediess			
Honeydew melons	89.66					
Xiwi fruit	83.05					
Kumquats	81.70	00.40*	* 1 11 1			
Lemons - juice	90.73	92.46*	*canned or bottled			
Lemons - peel	81.60					
emons - pulp	88.98	00 50*	*111 1			
Limes - juice	90.21	92.52*	*canned or bottled			
imes - unspecified	88.26					
oganberries	84.61					
Mulberries	87.68					
lectarines	86.28					
Oranges - unspecified	86.75	07.404	all varieties			
Peaches	87.66	87.49*	*canned juice pack			
Pears - dried	26.69	64.44*	sulfured; *without added sugar			
ears - fresh	83.81	86.47*	*canned juice pack			
ineapple	86.50	83.51*	*canned juice pack			
'ineapple - juice		85.53	canned			
lums	22.22	85.20				
uinces	83.80					
aspberries	86.57	_	-			
trawberries	91.57	89.97*	*frozen unsweetened			
angerine - juice	88.90	87.00*	*canned sweetened			
'angerines	87.60	89.51*	*canned juice pack			
Vatermelon	91.51					
<u>Vegetables</u>						
Alfalfa sprouts	91.14	_				
Artichokes - globe & French	84.38	86.50	boiled, drained			
Artichokes - Jerusalem	78.01					



n l		of Edible Portions	
Food	<u>Moisture Conte</u> Raw	ent (Percent) Cooked	Comments
Asparagus	92.25	92.04	boiled, drained
Bamboo shoots	91.00	95.92	boiled, drained
Beans - dry			
Beans - dry - blackeye peas (cowpeas)	66.80	71.80	boiled, drained
Beans - dry - hyacinth (mature seeds)	87.87	86.90	boiled, drained
Beans - dry - navy (pea)	79.15	76.02	boiled, drained
Beans - dry - pinto	81.30	93.39	boiled, drained
Beans - lima	70.24	67.17	boiled, drained
Beans - snap - Italian - green - yellow	90.27	89.22	boiled, drained
Beets	87.32	90.90	boiled, drained
Beets - tops (greens)	92.15	89.13	boiled, drained
Broccoli	90.69	90.20	boiled, drained boiled, drained
			*
Brussel sprouts	86.00	87.32	boiled, drained
Cabbage - Chinese/celery,	05.00	05 55	hatlad duate J
including bok choy	95.32	95.55	boiled, drained
Cabbage - red	91.55	93.60	boiled, drained
Cabbage - savoy	91.00	92.00	boiled, drained
Carrots	87.79	87.38	boiled, drained
Cassava (yucca blanca)	68.51		
Cauliflower	92.26	92.50	boiled, drained
Celeriac	88.00	92.30	boiled, drained
Celery	94.70	95.00	boiled, drained
Chili peppers	87.74	92.50*	*canned solids & liquid
Chives	92.00		1
Cole slaw	81.50		
Collards	93.90	95.72	boiled, drained
Corn - sweet	75.96	69.57	boiled, drained
Cress - garden - field	89.40	92.50	boiled, drained
Cress - garden	89.40	92.50	boiled, drained
		92.50	bolled, drailled
Cucumbers	96.05	00.00	h - 11 - 1 - 1 1
Dandelion - greens	85.60	89.80	boiled, drained
Eggplant	91.93	91.77	boiled, drained
Endive	93.79		
Garlic	58.58		
Kale	84.46	91.20	boiled, drained
Kohlrabi	91.00	90.30	boiled, drained
_ambsquarter	84.30	88.90	boiled, drained
Leeks	83.00	90.80	boiled, drained
Lentils - whole	67.34	68.70	stir-fried
Lettuce - iceberg	95.89		
Lettuce - romaine	94.91		
Mung beans (sprouts)	90.40	93.39	boiled, drained
Mushrooms	91.81	91.08	boiled, drained
Mustard greens	90.80	94.46	boiled, drained
Okra	89.58	89.91	boiled, drained
Onions	90.82	92.24	boiled, drained
	3.93	36.64	boneu, urameu
Onions - dehydrated or dried			
Parsley	88.31		
Parsley roots	88.31	mm mo	1 1 1 1 1 1
Parsnips	79.53	77.72	boiled, drained
Peas (garden) - mature seeds - dry	88.89	88.91	boiled, drained
Peppers - sweet - garden	92.77	94.70	boiled, drained
Potatoes (white) - peeled	78.96	75.42	baked



Table 9-19. Mean Moisture Content of Selected Fruits, Vegetables, and Grains Expressed As Percentages of Edible Portions			
Food	Moisture Content (Percent)		Comments
	Raw	Cooked	
Potatoes (white) - whole	83.29	71.20	baked
Pumpkin	91.60	93.69	boiled, drained
Radishes - roots	94.84		
Rhubarb	93.61	67.79	frozen, cooked with added sugar
Rutabagas - unspecified	89.66	90.10	boiled, drained
Salsify (oyster plant)	77.00	81.00	boiled, drained
Shallots	79.80		
Soybeans - sprouted seeds	69.05	79.45	steamed
Spinach	91.58	91.21	boiled, drained
Squash - summer	93.68	93.70	all varieties; boiled, drained
Squash - winter	88.71	89.01	all varieties; baked
Sweetpotatoes (including yams)	72.84	71.85	baked in skin
Swiss chard	92.66	92.65	boiled, drained
Γapioca - pearl	10.99	*****	dry
Taro - greens	85.66	92.15	steamed
Taro - root	70.64	63.80	
Γomatoes - juice		93.90	canned
Γomatoes - paste		74.06	canned
Γomatoes - puree		87.26	canned
Tomatoes - raw	93.95	07120	oumiou .
Comatoes - whole	93.95	92.40	boiled, drained
Fowelgourd	93.85	84.29	boiled, drained
Furnips - roots	91.87	93.60	boiled, drained
Furnips - tops	91.07	93.20	boiled, drained
Water chestnuts	73.46	00.20	bolicu, urumcu
Yambean - tuber	89.15	87.93	boiled, drained
Grains			
Barley - pearled	10.09	68.80	
Corn - grain - endosperm	10.37		
Corn - grain - bran	3.71		crude
Millet	8.67	71.41	
Oats	8.22		
Rice - rough - white	11.62	68.72	
Rye - rough	10.95		
Rye - flour - medium	9.85		
Sorghum (including milo)	9.20		
Wheat - rough - hard white	9.57		
Wheat - germ	11.12		crude
Wheat - bran	9.89		crude
Wheat - flour - whole grain	10.27		



	Ta	Table 9-20. Summary of Fruit and Vegetable Intake Studies	Intake Studies	
Study	Survey Population Used in Calculating Intake	Types of Data Used	Units	Food Items
KEY STUDIES EPA Analysis of 1989/91 USDA CSFII data	Per capita data; consumer only data can be calculated	1989/91 CSFII data; Based on 3-day average individual intake rate	g/kg-day; as consumed	Major food groups; individual food items; exposed and protected fruits and vegetables; USDA food categories
Pao et al., 1982	Consumers only serving size data provided	1977/78 NFCS 3-day individual intake data	g; as consumed	Serving sizes for only a limited number of products
RELEVANT STUDIES				
AIHC, 1994	Per Capita	Based on the 1977/78 USDA NFCS data provided in the 1989 version of the Exposure Factors Handbook.	g/day	Distributions for vegetables using @Risk software.
Canadian Department of National Health and Welfare, n.d.	Consumers only?	1970-72 survey based on 24-hour dietary recall	g/day; as consumed?	Fruit and fruit products, vegetables not including potatoes and nuts and legumes
EPA's DRES	Per capita (i.e., consumers and nonconsumers)	1977/78 NFCS 3-day individual intake data	g/kg-day; as consumed	Intake for a wide variety of fruits and vegetables presented; complex food groups were disaggregated
USDA, 1980; 1992b	Per capita and consumer only	1977/78 and 1987/88 NFCS 1-day individual intake data	g/day; as consumed	Total fruits and total vegetables
USDA, 1993	Per capita consumption based on "food disappearance"	Based on food supply and utilization data provided by the National Agricultural Statistics Service (NASS), Customs Service Reports, and trade associations	g/day; as consumed	Various food groups
U.S. EPA/ORP, 1984a; 1984b	Per capita	1977/78 NFCS Individual intake data	g/day; as consumed	Exposed, protected, and leafy produce
U.S. EPA/OST, 1989	Estimated lifetime dietary intake	Based on FDA Total Diet Study Food List which used 1977/78 NFCS data, and NHANES II data	g/day; dry weight	Various food groups; complex foods disaggregated



Table 9-21. Summary of Recommended Values for Per Capita Intake of Fruits and Vegetables and Serving Size			
Mean	95th Percentile	Multiple Percentiles	Study
Total Fruit Intake 3.4 g/kg-day	12 g/kg-day	see Table 9-3	EPA Analysis of CSFII 1989-91 Data
Total Vegetable Intake 4.3 g/kg-day	10 g/kg-day	see Table 9-4	EPA Analysis of CSFII 1989-91 Data
Individual Fruit and Vegetables Intake see Table 9-5	see Table 9-5	see Table 9-5	EPA Analysis of CSFII 1989-91 Data
<u>Serving Size</u> see Table 9-8	see Table 9-8	see Table 9-8	Pao et al., 1982



Table 9-22. Confidence in Fruit and Vegetable Intake Recommendations				
Considerations	Rationale	Rating		
Study Elements				
Level of peer review	USDA CSFII survey receives high level of peer review. EPA analysis of these data has not been peer reviewed outside the Agency. (Peer review will be conducted as part of the peer review of this Handbook)	Medium (This will become a "high" once the Handbook's peer review is completed)		
Accessibility	CSFII data is publicly available	High		
Reproducibility	Enough information is included to reproduce results	High		
Focus on factor of interest	Analysis is specifically designed to address food intake	High		
Data pertinent to U.S.	Data focuses on the U.S. population	High		
Primary data	This is new analysis of primary data	High		
Currency	Is the most current data publicly available	High		
Adequacy of data collection period	Survey is designed to collect short-term data.	Medium confidence for average values; Low confidence for long term percentile distribution		
Validity of approach	Survey methodology was adequate	High		
Study size	Study size was very large and therefore adequate	High		
Representativeness of the population	The population studied was the U.S. population.	High		
Characterization of variability	Survey was not designed to capture long term day- to-day variability. Short term distributions are provided	Medium		
<ul> <li>Lack of bias in study design (high rating is desirable)</li> </ul>	Response rate was adequate?	Medium		
Measurement error	No measurements were taken. The study relied on survey data.	N/A		
Other Elements				
Number of studies	1; CSFII is the most recent data publicly available. Therefore, it was the only study classified as key study.	Low		
Agreement between researchers	Although the CSFII was the only study classified as key study, the results are in good agreement with earlier data.	High		
Overall Rating	The survey is representative of U.S. population; Although there was only one study considered key, these data are the most recent and are in agreement with earlier data; the approach used to analyzed the data was adequate. However, due to the limitations of the survey design estimation of long-term percentile values (especially the upper percentiles) is uncertain.	High confidence in the average; Low confidence in the long-term upper percentiles		



Considerations	nfidence in Fruits and Vegetable Serving Size Recommendations  Rationale	Rating
Study Elements		
• Level of peer review	USDA NFCS survey receives high level of peer review.	High
<ul> <li>Accessibility</li> </ul>	The NFCS data are publicly available	High
<ul> <li>Reproducibility</li> </ul>	Methodology is clearly explained	High
Focus on factor of interest	Analysis is specifically designed to address food intake	High
• Data pertinent to U.S.	Data focuses on the U.S. population	High
Primary data	The study analyzed primary data	High
• Currency	The data are old (i.e., 1977-78)	Low
<ul> <li>Adequacy of data collection period</li> </ul>	Survey is designed to collect short-term data.	Medium
<ul> <li>Validity of approach</li> </ul>	Survey methodology was adequate	High
• Study size	Study size was very large and therefore adequate	High
• Representativeness of the population	The population studied was the U.S. population.	High
Characterization of variability	Survey was not designed to capture long term day- to-day variability. Short term distributions are provided	Medium
<ul> <li>Lack of bias in study design (high rating is desirable)</li> </ul>	Response rate was adequate	Medium
Measurement error	No measurements were taken. The study relied on survey data.	N/A
Other Elements		
• Number of studies	1	Low
Agreement between researchers	Although serving size data may have been collected in other surveys, they have not been reported in any other study.	Low
Overall Rating	The survey is representative of U.S. population; the approach used to analyzed the data was adequate. However, due to the limitations of the survey design estimation of long-term percentile values (especially the upper percentiles) is uncertain.	Medium



#### **APPENDIX 9A**

Calculations Used in the 1989/91 CSFII Analysis to Correct for Mixtures



#### APPENDIX 9A Calculations Used in the 1989/91 CSFII Analysis to Correct for Mixtures

Distributions of intake for various food groups were generated for the food/items groups using the USDA 1989/91 CSFII data set as described in Sections 9.2.2. and 11.1.2. However, several of the food categories used did not include meats, dairy products, and vegetables that were eaten as mixtures with other foods. Thus, adjusted intake rates were calculated for food items that were identified by USDA (1995) as comprising a significant portion of grain and meat mixtures. To account for the amount of these foods consumed as mixtures, the mean fractions of total meat or grain mixtures represented by these food items were calculated (Table 9A-1) using Appendix C of USDA (1995). Mean values for all individuals were used to calculate these fractions. These fractions were multiplied by each individual's intake rate for total meat mixtures or grain mixtures to calculate the amount of the individual's food mixture intake that can be categorized into one of the selected food groups. These amounts were then added to the total intakes rates for meats, grains, total vegetables, tomatoes, and white potatoes to calculate an individual's total intake of these food groups, as shown in the example for meats below.

$$IR_{meat-adjusted} = (IR_{gr\ mixtures}\ *\ FR_{meat/gr}) + (IR_{mt\ mixtures}\ *\ FR_{meat/mt}) + (IR_{meat})$$

where:

 $\begin{array}{lll} IR_{meat-adjusted} & = & adjusted individual intake rate for total meat; \\ IR_{gr\ mixtures} & = & individual intake rate for grain mixtures; \\ IR_{mt\ mixtures} & = & individual intake rate for meat mixtures; \\ IR_{meat} & = & individual intake rate for meats; \\ \end{array}$ 

 $Fr_{meat/gr}$  = fraction of grain mixture that is meat; and  $Fr_{meat/mt}$  = fraction of meat mixture that is meat.

Population distributions for mixture-adjusted intakes were based on adjusted intake rates for the population of interest.

Table 9A-1. Fraction of Grain and Meat Mixture Intake Represented by Various Food Items/Groups		
Grain Mixtures		
total vegetables	0.2360	
tomatoes	0.1685	
white potatoes	0.0000	
total meats	0.0787	
beef	0.0449	
pork	0.0112	
poultry	0.0112	
dairy	0.1348	
total grains	0.3146	
Meat Mixtures		
total vegetables	0.2778	
tomatoes	0.1111	
white potatoes	0.0333	
total meats	0.3556	
beef	0.2000	
pork	0.0222	
poultry	0.0778	
dairy	0.0556	
total grains	0.1333	

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#### **APPENDIX 9B**

Food Codes and Definitions Used in Analysis of the 1989/91 USDA CSFII Data





Appendix 9B. Food Codes and Definitions Used in Analysis of the 1989/91 USDA CSFII Data

Food Product	Foo	d Codes	
MAJOR FOOD GROUPS			
Total Fruits	6- Fruits citrus fruits and juices dried fruits other fruits fruits/juices & nectar fruit/juices baby food	(includes baby foods)	
Total Vegetables	7- Vegetables (all forms) white potatoes & PR starchy dark green vegetables deep yellow vegetables tomatoes and tom. mixtures other vegetables veg. and mixtures/baby food veg. with meat mixtures	411- Beans/legumes 412- Beans/legumes 413- Beans/legumes (includes baby foods; mixtures, mostly vegetables; does not include nuts and seeds)	
Total Meats	20- Meat, type not specified 21- Beef 22- Pork 23- Lamb, veal, game, carcass meat 24- Poultry 25- Organ meats, sausages, lunchmeats, meat spreads	(excludes meat, poultry, and fish with non-meat items; frozen plate meals; soups and gravies with meat, poultry and fish base; and gelatin-based drinks; includes baby foods)	
Total Dairy	Milk and Milk Products     milk and milk drinks     cream and cream substitutes     milk desserts, sauces, and gravies     cheeses	(includes regular fluid milk, human milk, imitation milk products, yogurt, milk-based meal replacements, and infant formulas)	
	INDIVIDUAL FO	ODS	
White Potatoes	71- White Potatoes and PR Starchy Veg. baked, boiled, chips, sticks, creamed, scalloped, au gratin, fried, mashed, stuffed, puffs, salad, recipes, soups, Puerto Rican starchy vegetables	(does not include vegetables soups; vegetable mixtures; or vegetable with meat mixtures)	
Peppers	7512100 Pepper, hot chili, raw 7512200 Pepper, raw 7512210 Pepper, sweet green, raw 7512220 Pepper, sweet red, raw 75122600 Pepper, green, cooked, NS as to fat added 7522601 Pepper, green, cooked, fat not added 7522602 Pepper, green, cooked, fat added 7522604 Pepper, red, cooked, NS as to fat added 7522605 Pepper, red, cooked, NS as to fat added	7522606 Pepper, red, cooked, fat added 7522609 Pepper, hot, cooked, NS as to fat added 7522610 Pepper, hot, cooked, fat not added 7522611 Pepper, hot, cooked, fat added 7551101 Peppers, hot, sauce 7551102 Peppers, pickled 7551105 Peppers, hot pickled (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)	
Onions	7510950 Chives, raw 7511150 Garlic, raw 7511250 Leek, raw 7511701 Onions, young green, raw 7511702 Onions, mature 7521550 Chives, dried 7521740 Garlic, cooked 7521840 Leek, cooked 7522100 Onions, mature cooked, NS as to fat added 7522101 Onions, mature cooked, fat not added	7522102 Onions, mature cooked, fat added 7522103 Onions, pearl cooked 7522104 Onions, young green cooked, NS as to fat 7522105 Onions, young green cooked, fat not added 7522106 Onions, young green cooked, fat added 7522110 Onion, dehydrated 7541501 Onions, creamed 7541502 Onion rings (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)	



Food Product	Fo	od Codes
Corn	7510960 Corn, raw 7521600 Corn, cooked, NS as to color/fat added 7521601 Corn, cooked, NS as to color/fat not added 7521602 Corn, cooked, NS as to color/fat added 7521605 Corn, cooked, NS as to color/cream style 7521607 Corn, cooked, dried 7521610 Corn, cooked, yellow/NS as to fat added 7521611 Corn, cooked, yellow/fat not added 7521612 Corn, cooked, yellow/fat added 7521615 Corn, cooked, yell & wh./NS as to fat 7521616 Corn, cooked, yell. & wh./Tat not added 7521617 Corn, cooked, yell. & wh./fat not added 7521618 Corn, cooked, yell. & wh./fat added 7521619 Corn, cooked, white/NS as to fat added	7521621 Corn, cooked, white/fat not added 7521622 Corn, cooked, white/fat added 7521625 Corn, white, cream style 7521630 Corn, yellow, canned, low sodium, NS fat 7521631 Corn, yell., canned, low sod., fat not add 7521632 Corn, yell., canned, low sod., fat added 7521749 Hominy, cooked 752175- Hominy, cooked 7541101 Corn scalloped or pudding 7541102 Corn fritter 7541103 Corn with cream sauce 7550101 Corn relish 76405- Corn, baby (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; includes baby food)
Apples	6210110 Apples, dried, uncooked 6210115 Apples, dried, uncooked, low sodium 6210120 Apples, dried, cooked, NS as to sweetener 6210122 Apples, dried, cooked, unsweetened 6210123 Apples, dried, cooked, with sugar 6210130 Apple chips 6310100 Apples, raw 6310111 Applesauce, NS as to sweetener 6310112 Applesauce with sugar 6310113 Applesauce with sugar 6310114 Applesauce with sugar 6310115 Applesauce with sugar 6310116 Applesauce with sugar 6310117 Applesauce with sugar 6310118 Apple, baked NS as to sweetener 6310131 Apple, baked, unsweetened 6310132 Apple, baked, unsweetened 6310133 Apple, baked with sugar	6310141 Apple rings, fried 6310142 Apple, pickled 6310150 Apple, fried 6340101 Apple, salad 6340106 Apple, candied 6410101 Apple cider 6410401 Apple juice 6410405 Apple juice with vitamin C 6410409 Apple juice with calcium 6710200 Applesauce baby food, strained 6710201 Applesauce baby food, strained 6710202 Apple juice, baby food (includes baby food; except mixtures)
Tomatoes	74- Tomatoes and Tomato Mixtures raw, cooked, juices, sauces, mixtures, soups, sandwiches	
Snap Beans	7510180 Beans, string, green, raw Beans, string, cooked, NS color/fat added P520499 Beans, string, cooked, NS color/no fat Beans, string, cooked, NS color & fat P520501 Beans, string, cooked, NS color & fat P520502 Beans, string, cooked, green/NS fat P520503 Beans, string, cooked, green/fat P520511 Beans, string, cooked, green/fat P520512 Beans, string, cooked, green/no fat P520513 Beans, string, cooked, yellow/NS fat P520600 Beans, string, cooked, yellow/NS fat P520601 Beans, string, cooked, yellow/no fat	7520602 Beans, string, cooked, yellow/fat 7540301 Beans, string, green, creamed 7540302 Beans, string, green, w/mushroom sauce 7540401 Beans, string, yellow, creamed 7550011 Beans, string, green, pickled 7640100 Beans, green, string, baby 7640101 Beans, green, string, baby, str. 7640102 Beans, green, string, baby, junior 7640103 Beans, green, string, baby, creamed (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; includes baby foods)
Beef	21- Beef beef, nfs beef steak beef oxtails, neckbones, ribs roasts, stew meat, corned, brisket, sandwich steaks ground beef, patties, meatballs other beef items beef baby food	(excludes meat, poultry, and fish with non-meat items; frozen plate meals; soups and gravies with meat, poultry and fish base; and gelatin-based drinks; includes baby food)



Food Product	Food Codes			
Pork	22- Pork pork, nfs; ground dehydrated chops steaks, cutlets ham roasts Canadian bacon bacon, salt pork other pork items pork baby food	(excludes meat, poultry, and fish with non-meat items; frozen plate meals; soups and gravies with meat, poultry and fish base; and gelatin-based drinks; includes baby food)		
Game	233- Game	(excludes meat, poultry, and fish with non-meat items; frozen plate meals; soups and gravies with meat, poultry and fish base; and gelatin-based drinks)		
Poultry	24- Poultry chicken turkey duck other poultry poultry baby food	(excludes meat, poultry, and fish with non-meat items; frozen plate meals; soups and gravies with meat, poultry and fish base; and gelatin-based drinks; includes baby food)		
Eggs	3- Eggs eggs egg mixtures egg substitutes eggs baby food froz. meals with egg as main ingred.	(includes baby foods)		
Broccoli	722- Broccoli (all forms)	(does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)		
Carrots	7310- Carrots (all forms) 7311140 Carrots in Sauce 7311200 Carrot Chips 76201- Carrots, baby	(does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; includes baby foods except mixtures)		
Pumpkin	732- Pumpkin (all forms) 733- Winter squash (all forms) 76205- Squash, baby	(does not include vegetable soups; vegetables mixtures; or vegetable with meat mixtures; includes baby foods)		
Asparagus	7510080 Asparagus, raw 75202- Asparagus, cooked 7540101 Asparagus, creamed or with cheese	(does not include vegetable soups; vegetables mixtures, or vegetable with meat mixtures)		
Lima Beans	7510200 Lima Beans, raw 752040- Lima Beans, cooked 752041- Lima Beans, canned 75402- Lima Beans with sauce	(does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; does not include succotash)		
Cabbage	7510300 Cabbage, raw 7510400 Cabbage, Chinese, raw 7510500 Cabbage, red, raw 7514100 Cabbage salad or coleslaw 7514130 Cabbage, Chinese, salad 75210- Chinese Cabbage, cooked 75211- Green Cabbage, cooked	75212- Red Cabbage, cooked 752130- Savoy Cabbage, cooked 75230- Sauerkraut, cooked 7540701 Cabbage, creamed 755025- Cabbage, pickled or in relish (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)		
Lettuce	75113- Lettuce, raw 75143- Lettuce salad with other veg. 7514410 Lettuce, wilted, with bacon dressing 7522005 Lettuce, cooked	(does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)		



Food Product	Food Codes		
Okra	7522000 7522001 7522002 7522010	Okra, cooked, NS as to fat Okra, cooked, fat not added Okra, cooked, fat added Lufta, cooked (Chinese Okra)	7541450 Okra, fried 7550700 Okra, pickled (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)
Peas	7512000 7512775 75223- 75224- 75225- 75231- 7541650	Peas, green, raw Snowpeas, raw Peas, cowpeas, field or blackeye, cooked Peas, green, cooked Peas, pigeon, cooked Snowpeas, cooked Pea salad	7541660 Pea salad with cheese 75417- Peas, with sauce or creamed 76409- Peas, baby 76411- Peas, creamed, baby (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; includes baby foods except mixtures)
Cucumbers	7511100 75142- 752167- 7550301 7550302 7550303 7550304	Cucumbers, raw Cucumber salads Cucumbers, cooked Cucumber pickles, dill Cucumber pickles, relish Cucumber pickles, sour Cucumber pickles, sweet	7550305 Cucumber pickles, fresh 7550307 Cucumber, Kim Chee 7550311 Cucumber pickles, dill, reduced salt 7550314 Cucumber pickles, sweet, reduced salt (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures)
Beets	7510250 752080- 752081- 7540501	Beets, raw Beets, cooked Beets, canned Beets, harvard	7550021 Beets, pickled 76403- Beets, baby (does not include vegetable soups; vegetable mixtures; or vegetable with meat mixtures; includes baby foods except mixtures)
Strawberries	6322- 6413250	Strawberries Strawberry Juice	(includes baby food; except mixtures)
Other Berries	6320- 6321- 6341101	Other Berries Other Berries Cranberry salad	6410460 Blackberry Juice 64105- Cranberry Juice (includes baby food; except mixtures)
Peaches	62116- 63135- 6412203 6420501	Dried Peaches Peaches Peach Juice Peach Nectar	67108- Peaches ,baby 6711450 Peaches, dry, baby (includes baby food; except mixtures)
Pears	62119- 63137- 6341201 6421501	Dried Pears Pears Pear salad Pear Nectar	67109- Pears, baby 6711455 Pears, dry, baby 6721200 Pear juice, baby (includes baby food; except mixtures)



Food Product	Food Codes				
	EXPOSED/PROTECTED FRUITS/VEGETABLES, ROOT VEGETABLES				
Exposed Fruits	621012- A	pple, dried pple, dried pple, dried pple chips  Apricot, dried Currants, dried Date, dried Peaches, dried Pears, dried Plum, dried Prune, dried Raisins Apples/applesauce Wi-apple Apricots Cherries, maraschino Acerola Cherries, sour Cherries, sweet	63143- 63146- 63147- 632- 64101- 64104- 64105- 64105- 64116- 64122- 64132- 6420101 64205- 64215- 67102- 67108- 67109-	Plum Quince Rhubarb/Sapodillo  Berries  Apple Cider Apple Juice Apple juice with calcium Cranberry Juice Grape Juice Peach Juice Prune/Strawberry Juice Apricot Nectar Pear Nectar Pear Nectar Applesauce, baby Pears, baby	
	63117- 63123-	Cherries, sweet Currants, raw Grapes Ineberry Nectarine Peach Pear Persimmons	6711450 6711455 67202- 6720380 67212- (includes b fruit mixtu	Peaches, baby, dry Pears, baby, dry Apple Juice, baby White Grape Juice, baby Pear Juice, baby baby foods/juices except mixtures; excludes ires)	
Protected Fruits	62107- 62113- 62114- 62120- 62126- 63105- 63107- 63109- 63110- 63119- 63121- 63125- 6312650 K	itrus Fr., Juices (incl. cit. juice mixtures) Bananas, dried Figs, dried Lychees/Papayas, dried Pineapple, dried Tamarind, dried Avocado, raw Bananas Cantaloupe, Carambola Cassaba Melon Figs Genip Guava/Jackfruit, raw  iwi ychee, raw ychee, cooked Honeydew Mango Papaya Passion Fruit	63145- 63148- 63149- 64120- 64121- 64124- 64125- 64133- 6420150 64202- 64203- 64204- 64210- 64213- 64221- 6710503 6721500 6721500 (includes b	Pomegranate Sweetsop, Soursop, Tamarind Watermelon Papaya Juice Passion Fruit Juice Pineapple Juice Pineapple juice Watermelon Juice Banana Nectar Cantaloupe Nectar Guava Nectar Mango Nectar Papaya Nectar Passion Fruit Nectar Soursop Nectar Bananas, baby Bananas, baby Brananas, baby Brananas, baby Pineapple Juice, baby Pineapple Juice, baby Pobaby foods/juices except mixtures; excludes fruit	



Food Product		Fe	ood Codes	
Exposed	721-	Dark Green Leafy Veg.	752167-	Cucumber, cooked
Veg.	722-	Dark Green Nonleafy Veg.	752170-	Eggplant, cooked
C	74-	Tomatoes and Tomato Mixtures	752171-	Fern shoots
	7510050	Alfalfa Sprouts	752172-	Fern shoots
	7510075	Artichoke, Jerusalem, raw	752173-	Flowers of sesbania, squash or lily
	7510080	Asparagus, raw	7521801	Kohlrabi, cooked
	75101-	Beans, sprouts and green, raw	75219-	Mushrooms, cooked
	7510260	Broccoflower, raw	75220-	Okra/lettuce, cooked
	7510275	Brussel Sprouts, raw	7522116	Palm Hearts, cooked
	7510273	Buckwheat Sprouts, raw	7522110	Parsley, cooked
	7510200	Cabbage, raw	7522121	Peppers, pimento, cooked
	7510300	Cabbage, Chinese, raw	75230-	Sauerkraut, cooked/canned
	7510400	<b>0</b> /	75231-	
		Cabbage, Red, raw		Snowpeas, cooked
	7510700	Calliflower, raw	75232-	Seaweed
	7510900	Celery, raw	75233-	Summer Squash
	7510950	Chives, raw	7540050	Artichokes, stuffed
	7511100	Cucumber, raw	7540101	Asparagus, creamed or with cheese
	7511120	Eggplant, raw	75403-	Beans, green with sauce
	7511200	Kohlrabi, raw	75404-	Beans, yellow with sauce
	75113-	Lettuce, raw	7540601	Brussel Sprouts, creamed
	7511500	Mushrooms, raw	7540701	Cabbage, creamed
	7511900	Parsley	75409-	Cauliflower, creamed
	7512100	Pepper, hot chili	75410-	Celery/Chiles, creamed
	75122-	Peppers, raw	75412-	Eggplant, fried, with sauce, etc.
	7512750	Seaweed, raw	75413-	Kohlrabi, creamed
	7512775	Snowpeas, raw	75414-	Mushrooms, Okra, fried, stuffed, cream
	75128-	Summer Squash, raw	754180-	Squash, baked, fried, creamed, etc.
	7513210	Celery Juice	7541822	Christophine, creamed
	7514100	Cabbage or cole slaw	7550011	Beans, pickled
	7514130	Chinese Cabbage Salad	7550051	Celery, pickled
	7514150	Celery with cheese	7550201	Cauliflower, pickled
	75142-	Cucumber salads	755025-	Cabbage, pickled
	75143-	Lettuce salads	7550301	Cucumber pickles, dill
	7514410	Lettuce, wilted with bacon dressing	7550301	Cucumber pickles, relish
	7514410	Greek salad	7550302	Cucumber pickles, sour
				Cucumber pickles, sour
	7514700	Spinach salad	7550304	
	7520060	Algae, dried	7550305	Cucumber pickles, fresh
	75201-	Artichoke, cooked	7550307	Cucumber, Kim Chee
	75202-	Asparagus, cooked	7550308	Eggplant, pickled
	75203-	Bamboo shoots, cooked	7550311	Cucumber pickles, dill, reduced salt
	752049-	Beans, string, cooked	7550314	Cucumber pickles, sweet, reduced salt
	75205-	Beans, green, cooked/canned	7550500	Mushrooms, pickled
	75206-	Beans, yellow, cooked/canned	7550700	Okra, pickled
	75207-	Bean Sprouts, cooked	75510-	Olives
	752085-	Breadfruit	7551101	Peppers, hot
	752090-	Brussel Sprouts, cooked	7551102	Peppers,pickled
	75210-	Cabbage, Chinese, cooked	7551104	Peppers, hot pickled
	75211-	Cabbage, green, cooked	7551301	Seaweed, pickled
	75212-	Cabbage, red, cooked	7553500	Zucchini, pickled
	75212-	Cabbage, savoy, cooked	76102-	Dark Green Veg., baby
	752130-	Cauliflower	76401-	Beans, baby (excl. most soups &
	75214-	Celery, Chives, Christophine (chayote)	/0401-	mixtures)



Food Product	Food Codes		
Protected	732- Pumpkin	752175- Hominy	
Veg.	733- Winter Squash	75223- Peas, cowpeas, field or blackeye, cooked	
Ü	7510200 Lima Beans, raw	75224- Peas, green, cooked	
	7510550 Cactus, raw	75225- Peas, pigeon, cooked	
	7510960 Corn, raw	75301- Succotash	
	7512000 Peas, raw	75402- Lima Beans with sauce	
	7520070 Aloe vera juice	75411- Corn, scalloped, fritter, with cream	
	752040- Lima Beans, cooked	7541650 Pea salad	
	752041- Lima Beans, canned	7541660 Pea salad with cheese	
	7520829 Bitter Melon	75417- Peas, with sauce or creamed	
		7550101 Corn relish	
	7520950 Burdock	76205- Squash, yellow, baby	
	752131- Cactus	76405- Corn, baby	
	752160- Corn, cooked	76409- Peas, baby	
	752161- Corn, yellow, cooked	76411- Peas, creamed, baby	
	752162- Corn, white, cooked	(does not include vegetable soups; vegetable mixtures; or	
	752163- Corn, canned 7521749 Hominy	vegetable with meat mixtures)	
Root	71- White Potatoes and Puerto Rican St. Veg.	7522110 Onions, dehydrated	
Vegetables	7310- Carrots	752220- Parsnips, cooked	
v egetables	7310- Carrots 7311140 Carrots in sauce	75227- Radishes, cooked	
	7311200 Carrot chips	75228- Rutabaga, cooked	
	734- Sweetpotatoes	75229- Salsify, cooked	
	7510250 Beets, raw	75234- Turnip, cooked	
	7511150 Garlic, raw	75235- Water Chestnut	
	7511180 Jicama (yambean), raw	7540501 Beets, harvard	
	7511250 Leeks, raw	75415- Onions, creamed, fried	
	75117- Onions, raw	7541601 Parsnips, creamed	
	7512500 Radish, raw	7541810 Turnips, creamed	
	7512700 Rutabaga, raw	7550021 Beets, pickled	
	7512900 Turnip, raw	7550309 Horseradish	
	752080- Beets, cooked	7551201 Radishes, pickled	
	752081- Beets, canned	7553403 Turnip, pickled	
	7521362 Cassava	76201- Carrots, baby	
	7521740 Garlic, cooked	76209- Sweetpotatoes, baby	
	7521771 Horseradish	76403- Beets, baby	
	7521840 Leek, cooked	(does not include vegetable soups; vegetable mixtures; or	
	7521850 Lotus root	vegetable with meat mixtures)	
	75210- Onions, cooked	regenable with ineat mixtures)	
	USDA SUBCATE	GORIES	
Dark Green	72- Dark Green Vegetables		
Vegetables	all forms		
	leafy, nonleafy, dk. gr. veg. soups		
Deep Yellow	73- Deep Yellow Vegetables		
Vegetables	all forms		
	carrots, pumpkin, squash, sweetpotatoes, dp. yell. veg. soups		
Other			
Vegetables	75- Other Vegetables all forms		
Citrus Fruits	61- Citrus Fruits and Juices	6720700 Orange-Pineapple Juice, baby food	
	6720500 Orange Juice, baby food	6721100 Orange-Apple-Banana Juice, baby food	
	6720600 Orange-Apricot Juice, baby food	(excludes dried fruits)	



Food Product	Food Codes			
Other Fruits	<ul> <li>62- Dried Fruits</li> <li>63- Other Fruits</li> <li>64- Fruit Juices and Nectars Excluding Citrus</li> <li>671- Fruits, baby</li> <li>67202- Apple Juice, baby</li> <li>67203- Baby Juices</li> </ul>	67204- Baby Juices 67212- Baby Juices 67213- Baby Juices 6725- Baby Juice 673- Baby Fruits 674- Baby Fruits		
MIXTURES				
Meat Mixtures	27- Meat Mixtures (includes frozen plate meals and soups) 28-			
Grain Mixtures	58- Grain Mixtures (includes frozen plate meals and soups)			